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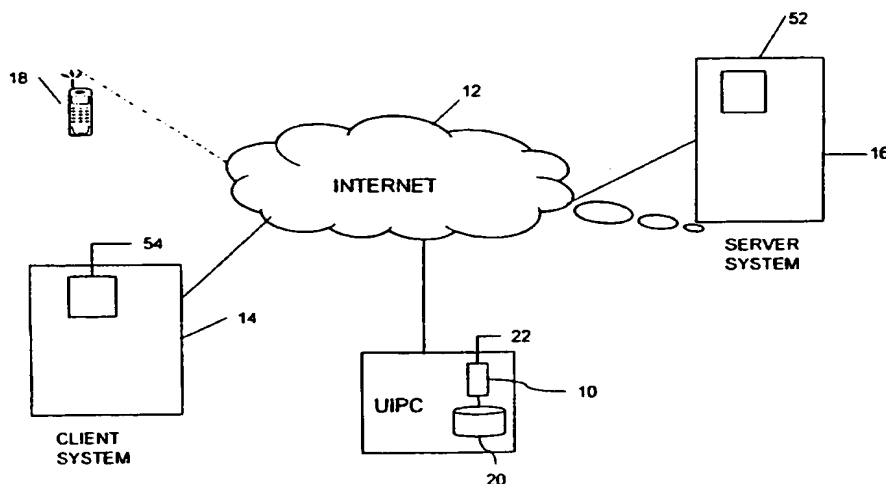
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(54) Title: UNIVERSAL PRODUCT CLASSIFICATION METHOD AND SYSTEM FOR USE WITH AN INTERNET WORKED COMPUTER SYSTEM



(57) Abstract: A universal internet product code system and method of classifying a plurality of items is provided so that the items can be remotely searched on a network. The system and method includes, for each item of the plurality of items, receiving a request for registering an item, receiving data describing the item and determining if at least one of a plurality of previously created categories already properly include the item. The item is then assigned to at least one of the previously created categories when the item is already properly included in the category. Otherwise, the method includes creating a new category associated with the item when none of the previously created categories should include the item. Additionally first codes are created having an entire character sequence corresponding to a combination of categories including the new categories so that each the first code indicates a type of item. This also includes assigning one of the first codes to the item, and finally relationally storing the first code, the category to which the item is assigned, and the data describing the item on a database.

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UNIVERSAL PRODUCT CLASSIFICATION METHOD AND SYSTEM FOR USE WITH AN INTERNET WORKED COMPUTER SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

Applicants claim priority under 35 U.S.C. § 119(e)(1) to United States Provisional Patent Application Serial No. 60/159,404, filed October 14, 1999. The disclosure of that provisional patent application is fully incorporated herein by reference.

TECHNICAL FIELD

The invention relates generally to universal product classification systems and translators, and more particularly to a method and system for standardizing product codes on computer networks, such as the Internet, for a user to search for, sell or purchase products or services.

BACKGROUND OF THE INVENTION

The World Wide Web, as part of the Internet, is frequently used for searching for web sites or web pages that provide information regarding specific goods or services offered for sale, lease, etc. A potential customer with a computer that has web access typically uses a web browser such as Netscape Navigator or Microsoft Explorer to obtain access to a search engine web site for searching for products, services or commodities. A search for a product is conventionally based on key words, and the search engine either has

a database of web site addresses or a searching tool to find web site addresses accessible through the Internet. The search engine then scans the web sites with the known addresses for the key words, and any web site that includes the key words are revealed to the customer performing the search.

Due to the limitations of search engine databases and search engine searching tools as well as the size of the Internet, search engines can only search through a tiny fraction of the number of web sites that are currently accessible through the Internet. This results in the search engine frequently missing web sites that display information on the exact product a customer is seeking. Furthermore, since most search engines base their search on key words, many irrelevant web sites that contain the key words but having nothing to do with the product the customer is seeking may be displayed to the customer instead of the relevant web sites.

In addition to Internet search problems, many businesses have difficulty tracking their own product inventories and sales. To help a merchant or company with the sorting of its own products, known organizations provide universal product classification systems. For instance, the UCC (Universal Code Council) provides UPC numbers, and the EAN (European Article Numbering) International provides its own numbers in a similar fashion.

Systems such as the UPC system have codes with digits that are easily processed by computers since they are numerical. Furthermore, the digits can

be translated into language specific information about the product it represents.

However, even when product code numbers are known, a wide search for a specific classification or product is impossible because no centralized system exists for classifying all items or products that "enter" the web. The UCC and EAN merely require a manufacturer to request a MIN number portion of a code number that represents the manufacturer or merchant. The MIN number is then sent (through regular mail in the case of the UCC) to the manufacturer for the manufacturer's use. The manufacturer is then responsible for creating a series of code numbers by numbering his products or brands and adding these numbers to the end of the MIN number to establish complete UPC or EAN numbers.

Thus, a portion of the code number represents the specific manufacturer and another portion of the code represents the specific product. With this system, each merchant maintains its own database of numbers so that similar products listed by different merchants can have totally different product code numbers. This becomes an enormous problem when competitors merge or buy each other out. This problem also occurs when a single large manufacturer handles thousands of separate suppliers. Tracking inventory and sales is extremely difficult when each company has its own numbering system for products, services or commodities in the same exact market or category.

Similarly, a trade organization or service company that wishes to logically list all products in a certain market independent from the

manufacturers that produced the products would find it very difficult. So many different standardized SKUs (Stock Keeping Units) or code numbers exist (UPC versions A and E, EAN 13, ISBN, etc.) that it would take a very powerful, expensive computer to maintain a centralized, cross-referenced library or database to keep track of, and cross reference, all the different codes.

Therefore, it is a main object of the present invention to provide an improved method and system of universally classifying items on the Internet for efficient searches for, and organization of, information on the items.

More specifically, an object of the present invention is to provide an improved method and system of classifying items on the Internet that provides for searches that have the ability to find a sufficient portion of the information provided on the Internet regarding the item being sought.

Another object of the present invention is to provide an improved method and system of classifying items on the Internet that provides for substantially accurate searches that omit irrelevant information and only seeks information on the exact item sought.

Yet another object of the present invention is to provide an improved method and system of universally classifying items on the Internet that provides an inexpensive and efficient way for translating a variety of different codes into a single universal Internet product code.

These and other objects of the present invention are discussed or will be apparent from the detailed description of the invention.

SUMMARY OF THE INVENTION

In keeping with one aspect of the present invention, a universal Internet product code method and system provides for efficient online searches because it identifies items by using an inventory protocol that creates categories assigned to a native code. Each native code has an entire character sequence representing a plurality of categories so that each native code ultimately indicates a type of item (such as a narrow category – e.g. 1978 Indian head pennies or brown teddy bears) rather than an item itself or an individual item without the necessity to indicate the manufacturer of the item. The native code is encoded into a publicly accessible distributed code, and searches can be performed using the distributed code as a parameter. The distributed codes are also stored in association with the native codes so that decoding is not necessary for a search.

In keeping with another aspect of the present invention, a universal product code translator has a universal product code that replaces an entire family of product codes collected when, for instance, a large company buys out a lot of small companies producing the same type of product. As mentioned before, each of the typical UPC product codes has a unique character sequence with one portion corresponding to a single manufacturer and another portion relating to a similar type of product produced by all of the manufacturers. In contrast, a single universal product code generated according to the invention by an inventory protocol has a character sequence indicating the type of product without corresponding to a manufacturer so that

the single universal product code corresponds to the type of product, which eliminates the need for the entire family of manufacturer based product codes.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other features of this invention and the manner of obtaining them will be apparent, and the invention itself will be best understood, by reference to the following description of an illustrated embodiment of the invention in conjunction with the drawings, in which:

FIG. 1 is a simplified diagram of a network used by the method and system of universal Internet product classification in accordance with the present invention;

FIG. 2 is another simplified diagram of a network and primary operations in accordance with the present invention;

FIG. 3 is block diagram showing the basic components of a universal internet product code system in accordance with the present invention;

FIG. 4 is a diagram of sample data for a native code in accordance with the present invention;

FIG. 5 is a flow chart showing the process for registering items on the UIPC system in accordance with the present invention;

FIG. 6 is a flow chart showing the general process for creating a UIPC code in accordance with the present invention;

FIG. 7 is a flow chart showing a first portion of a process for creating a UIPC code in accordance with the present invention;

FIG. 8 is a flow chart showing more detail of the first portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 9 is a flow chart showing a second portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 10 is a flow chart showing more detail of the second portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 11 is a flow chart showing a third portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 12 is a flow chart showing more detail of the third portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 13 is a flow chart showing a fourth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 14 is a flow chart showing more detail of the fourth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 15 is a flow chart showing a fifth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 16 is a flow chart showing a sixth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 17 is a flow chart showing a seventh portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 18 is a flow chart showing an eighth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 19 is a flow chart showing a ninth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 20 is a flow chart showing a tenth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 21 is a flow chart showing more detail of the tenth portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 22 is a flow chart showing an eleventh portion of the process for creating a UIPC code in accordance with the present invention;

FIG. 23 is a diagram showing the general online search options and features provided in accordance with the present invention;

FIG. 24 is a flow chart showing the process of a first online search in accordance with the present invention;

FIG. 25 is a flow chart showing the process of a second online search in accordance with the present invention;

FIG. 26 is a flow chart showing the process of a third online search in accordance with the present invention;

FIG. 27 is a schematic diagram showing the structure of a Look-See module in accordance with the present invention;

FIG. 28 is a flow chart showing one of the Look-See processes for online searches in accordance with the present invention;

FIG. 29 is a flow chart showing the process of a fifth online search in accordance with the present invention;

FIG. 30 is a flow chart showing the process of a sixth online search in accordance with the present invention;

FIG. 31 is a schematic diagram showing another network providing the universal Internet product code system in accordance with the present invention;

FIG. 32 shows a sample web page with a search window for a UIPC number or category search in accordance with the present invention; and

FIG. 33 shows a sample web page with a natural language search and search results in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The above listed objects are met or exceeded by the present method and system for a Universal Internet Product Code (UIPC). As shown in FIG. 1, the present method and system can operate on a basic network structure. Even though the present method and system can operate on LANs or private WANs as known in the art, in the preferred embodiment a UIPC system 10 operates in the publicly accessible Internet environment. This includes at least one UIPC service provider that maintains a UIPC server system (or universal product code translator) 10 connected to the Internet 12. The UIPC server system 10 provides web pages and web accessible data for downloading by client, user or customer systems 14 and server systems such as business or merchant server systems 16. The UIPC method and system is also designed to be convenient for wireless applications 18 such as web enabled wireless

telephones, wireless Internet enabled bar code devices such as scanners with displays and other devices using wireless or blue tooth technology as known in the art. The hardware, memory devices, interfaces and operating systems for the client and server systems 10, 14, 16 and 18 are also known in the art.

Referring to FIGs. 2-3, the UIPC server system 10 stores and operates the main software for the UIPC method and system on either a separate server or web/main server 22 that also preferably provides a UIPC web site (as shown, for example, by FIGs. 32-33). The UIPC system 10 provides four primary functions represented by processes 1-4. First, UIPC numbers or codes are created and controlled by an inventory protocol 60 on the UIPC system 10 that enters and processes all initial level information and all unique item registration data input from users. Second, a Dynamic Uplink protocol 62 provides for a number of different search options by manipulating the codes themselves or information related to the codes. Third, the UIPC provides a system for distributing the code to develop a product coding standard for the internet. Fourth, manufacturers, stores, or other parties with an item for sale can register their items such as products, services or commodities using the registration section 64 on the main server of the UIPC system 10.

The UIPC server system 10 will preferably maintain a database 20, or have access to database(s), for storing all codes, fields, nested tables, web pages and related data or information using memory and database management known in the art. The database 22 is mounted on a server having a processor, provided with memory, an operating system and ROM with

sufficient capacities as known in the art. The database 20 may be SQL based, and is otherwise preferably managed by a database manager 66, which can be a separate database server as known in the art linking the main server 22 to the database 20. The UIPC system 10 also includes a decoder plug-in 52 which is software that is stored locally at a manufacturer or business server system 16 and a Look-See plug-in 54 stored locally at customer (user) or client systems 14 or 18 (shown on FIG. 1).

The UIPC system 10 is based on alphanumeric or purely numeric codes that are category based rather than manufacturer based. In other words, the alphanumeric code uniquely corresponds to a specific node in a hierarchical category structure. Thus, the code is associated with item classification categories from broad (such as the general industry the item belongs in) to narrow (the style or type of item). In this structure, a specific manufacturer is not necessarily directly related to the code. This is especially true for commodities, like coins for example, where the code might be based on categories such as: "Coins/USA/Cents/Indian head."

However, the manufacturer or the party selling or registering the item may be directly associated with a category when it is logical to use the name of that business as a category. For instance, if a manufacturer is the only company that produces a certain item, the company must be used to identify the item. Thus, a code based on "Toys and Games/Blocks/Legos/Pirate Ship Set" necessarily indicates a product produced by the Lego Company (although

a search for the Lego® product may reveal a different party is actually selling or reselling the Lego® product).

Otherwise, providing a code that only indicates an item description rather than a specific manufacturer permits the UIPC to act as a universal code translator integrating all varieties of products and items under a single numbering system. This is especially true when a large company has merged or bought many other companies all with similar products that could be listed in a common category based product code.

Referring to FIG. 4, the UIPC code has two levels or forms: an internal, secure native code and a public distributed code. FIG. 4 shows a sample of the data stored for each native code represented as a block of data 56, which is merely a schematic representation of the data provided to show all the data associated with a native code in a convenient and organized fashion. As shown in FIG. 3, database 20 preferably has a number of searchable nested tables for storing each kind of data. For instance, all the industry fields 24 are actually stored in the industry table 68. Pointers and links are then used by the database manager 66 to find and retrieve data from the tables as known in the art. Thus, block 56 preferably does not indicate the actual physical storage locations or even indicate the method of storing the data, but instead merely is used to explain the relationship of the data for each native code.

The native code is used internally to administer the database structure, and in the illustrated embodiment, takes the form of a 10-character, 4-block sequence such as:

AB CD EF 1234,

where the first block or first two characters AB represent the UIPC industry code or the industry to which the UIPC relates. For example, 'SP' for Sports, 'TG' for Toys and Games or M9 for Metal Laminates. The first two characters can be any two alphanumeric or special characters (e.g. A-Z, 0-9, \$, @, etc.), and both the characters and a description of the industry are preferably stored at field 24 in industry code table 68.

The second block or second two characters 'CD' is the UIPC industry segment, which is stored in field 26 at industry segment table 70 with a description of the industry segment. These two characters can also be any alphanumeric characters, and corresponds to a specific segment of the AB industry. For instance, for industry TG (Toys and Games), CD might state FU (Furry Toys) or EP (Electronic Pets).

Field 28 (actually stored on industry sub-segment table 72) stores the third set of two characters 'EF' as the UIPC Sub-segment along with its category description. This block of characters provides a further breakdown of the segment code, such as a particular type of furry toy such as an Elmo® or Furby®.

Finally, the fourth block, stored in field 30 at sequential identifier table 74 with its category description, is a UIPC sequential identifier that is a four

digit number (0000 to 9999) which identifies a style or type of item associated with the industry/segment/sub-segment portion of the code. For instance, a particular color of Furby® might be assigned the native UIPC code 'TG-EP-FU-2408.' As mentioned above, the manufacturer may not be represented by the UIPC code at all unless the type of item such as a Furby® is necessarily manufactured by one company so that it is indirectly indicated or some other logical reason exists to use the manufacturer as a category.

It will also be appreciated that the textual category description shown in fields 24, 26, 28 and 30 may be stored in an additional separate category table (not shown) or a short description table 76 instead of in the code tables 68, 70, 72, 74 themselves.

Each native code also has a Next Number Available Field 32 stored on a native data constants table 78. This number is used to pick a number for a sequential identifier for each sub-segment.

In addition to the Next Number Available Field 32, each native code is associated with a number of other fields stored in tables on database 20 at the UIPC server system 10. These include Descriptive Information Fields 44 of up to 60 characters for describing details of the type of item the native code represents. The Fields 44 are stored at short description table 76. The Descriptive Information field 44 may repeat the names of the categories and/or add other details. Image reference fields 46, video reference fields 48 and audio reference fields 50 are also provided to further describe the native code. These are network or internet accessible files with their own web addresses or

URLs. The image files refer mainly to web pages. The URLs may be stored on separate nested tables or as part of the link table 84 or description table 74. Multiples of each of these fields are provided for each native code to provide the fields in a number of different languages, such as English, French, German, Japanese, etc, which are stored on language tables 80.

Other related fields provided for each native code include a date of creation field 34, a date of last amendment field 36, a Logical Start Number of UIPC Sequential Identifier field 38, Logical/Initial Source of Item field 40 (which holds the name and information of the party or company that registered for the UIPC code) stored in separate tables or in a native data table 82. Link codes 42 for linking an item to multiple native codes are stored at a link table 84. The link table 84 lists other associated industry/segment/sub-segment sequences when an item can be classified under more than one sequence.

Data for an item or individual items registered by users such as merchants or dealers may be stored on other separate tables, separate databases or a portion of database 20 that holds all information regarding the party that registered the item. The source field 40 or link codes 42 may be used as a cross-reference to this information. The data may include specific descriptions of an individual or precise item and URL (web page address), price, etc. that will be displayed as search results for searches based on the native code associated with the item. An example of a search result and a web page for implementing it is shown in FIG. 33.

Another aspect of the present invention is the Dynamic Uplink Protocol 62 residing on the UIPC system 10. The Dynamic Uplink protocol 62 includes an encoder 86 for encrypting the native code into a public or distributed code that the public can view and manipulate for searching for products on the Internet with a searching mechanism 90 also provided by the Dynamic Uplink protocol. The distributed code is derived from the native code by encryption methods known in the art, and is employed on the UIPC web site and throughout its business activities to secondarily identify the same category node, while concealing the hierarchical industry/segment/sub-segment/sequential identifier relationship.

The distributed code is created using a reversible algorithm as known in the art, which manipulates the component order and adds a two-byte checksum to help maintain integrity. The result is a 12-character, 3-block alphanumeric or purely numeric sequence such as:

J302.HA8L.656P

which is then stored in a distributed UIPC table 88.

Since the distributed code is directly related to a specific native code, and if the distributed code is known, it can be used to specify a type of item to submit to, or register with, the UIPC database 20 under the control of the Inventory Protocol 60 as explained below. For instance, if the distributed code recited above relates to the Native Code directed to a Furby® of a specific color, and if a user knows the distributed code for the Furby® in that color, which the user desires to sell, the user may obtain a registration form from the

UIPC provider to register the item under that distributed code. This will result in the user's information being displayed on a list of search results whenever a customer does a search directed to that color Furby®. The displayed results may be worded in an advertisement like format and may include a link to the user's web page where the Furby® can be purchased.

By keeping the native code inaccessible to the general public, the UIPC system will be able to maintain management and assignment of the codes to ensure the integrity of the system and to prevent unauthorized tampering with the codes. A valid new UIPC can only be created by the UIPC service provider by creating a native UIPC and then passing it through the UIPC distribution algorithm. A typical user registering an item for sale will only see the distributed code, which indicates the category the item is associated with. As long as the distributed code is based on the native code, the UIPC web site will always be able to categorize the corresponding items appropriately.

Exceptions to these measures will be made for users who wish to view the native code under a license agreement with the UIPC service provider. The decoder plug-in 52 will then be provided on the user's system 16 for decoding the distributed code into the native code. A user or company may then use the native codes in order to manage inventory or as a universal translator to standardize their internal item coding by merging, integrating or eliminating multiple, separate and/or incompatible product coding systems.

Item Registration Process

Referring now to FIG. 5, the registration section 64 on the main server 22 provides a registration process. When a user, manufacturer, merchant, reseller, etc. has an item they wish to register and obtain a UIPC number, they can either enter the UIPC web site through their client system 14 (step 100) or request and actually mail in a registration form (steps 102, 104). If the user entered the web site, a new item option is provided. When selected, a registration form or a registration web page as known in the art (step 106) will be provided with blank fields to type in information or toggles for the user to select among certain options, such as whether or not they are a new customer.

By either registration method, the user is asked if they are a new user (step 108). If so, a customer ID number is allocated to the user (steps 110, 112), and if not, the user's ID number is retrieved from a customer database preferably residing on database 20 (step 114).

Both types of registration forms (electronic or hardcopy) will inquire as to the industry, industry segment, industry sub-segment, and identifier as well as a short description of the item and all references to be linked to the item (image, video, audio). Upon receiving the input for the form, or the form itself, the registration section searches the database to match the categories (step 116, 118). If a match exists, and no new UIPC number is required, the existing matching UIPC code is assigned to the new item (step 120) and the short description or "Look-See" description is associated with the existing UIPC code (step 122).

If on the other hand, the categories entered by the user are not already in the database 20, indicating new categories, the process proceeds to the UIPC native code generation process FIG. 6 (step 124). Once a new UIPC code is assigned, the Look-See individual description is entered (step 126), and for both existing and new UIPC items, the description or Look-See links (step 128) are created and stored on the link table 84 so that the correct description will be displayed for searches for that type of item that was just registered.

UIPC Native Code Generation Process

Referring now to FIG. 6, the inventory protocol 60 operates a process for generating new UIPC codes. This new UIPC code option is provided for those who enter the UIPC web site with the specific intention of creating new categories and those who wish to update or edit the data stored for an item.

As shown in 6, general steps 130 to 150 are all portions of the code generation process 124. Each general step 130 to 150 represents a more detailed process as shown in FIGs. 7-22. Referring now to FIG. 6, an item identifier section 92 of the inventory protocol 60 is used to determine if categories for an item already exist by using a tree elimination format displayed to the user, and a category generator section 94 is used to save new categories to the database 20 (steps 130, 132, 134, 136).

After verification that the categories are unique (step 138), a native code generator section 96 constructs the native code (step 140), and the inventory protocol determines and saves the links to the different references

related to the native code, including any multilingual data, as shown on FIG. 4 (steps 142, 144, 146, 148). The Dynamic Uplink protocol then creates the distributed code (step 148) before the UIPC system 10 transmits updates to all UIPC databases (step 150).

Referring to FIGs. 7-8, whenever a site visitor or user selects the option to create/insert a new UIPC code, a sequential series of processes determines the logical positioning of the item within the overall UIPC category definitions. The first step (step 130) determines the highest level of category - the industry code. To accomplish this, the user preferably sees and selects from the existing industry categories before determining that a new category is necessary. Referring to FIG. 8, to display categories to the user (at step 130A-1) the short descriptions of the existing industry codes are loaded from the industry code table 68 to perform a search. The descriptions are then sorted into an alphabetic sequence (step 130A-2) and a search is performed (step 130A-3) for a category that has words that either partially or fully match words from the category entered by the user during registration or request for a new UIPC. If any matches are found (step 130A-4), the matching categories are extracted (step 130A-5) for display to the user typically as a drop down list which permits the user to select from the list.

Referring again to FIG. 7, upon viewing the list of displayed related categories, the user has the option of selecting one of the listed categories as the proper industry for their item (step 130B). If a proper industry is not listed, the user's inputted industry description is added to the industry code

table 68 (step 130C) and the display process 130A is repeated. Once the user indicates that the proper industry is listed, that industry is selected as the description of the industry code (step 130D).

Referring now to FIGs. 9-10, the process for selecting an industry segment description (step 132, including steps 132A-132D on FIG. 9 and steps 132A-1 to 132A-5 on FIG. 10) is identical to the process described in FIGs. 7-8 except that the industry segment table 70 is accessed for finding and saving industry previously segment descriptions. Additionally, only segments that are subordinate or included within the selected industry will be retrieved for display to the user.

Likewise, FIGs. 11-12 describe the process for selecting a sub-segment description (step 134, including steps 134A-134D on FIG. 11 and steps 134A-1 to 134A-5 on FIG. 12). Here, the sub-segment table 72 is accessed to select or set the sub-segment description. Only sub-segments subordinate or included within the previously selected segment will be displayed to the user.

Referring to FIGs. 13-14, the narrowest category that needs to be selected for the item is recited in the sequential identifier description. The process for locating and obtaining the sequential identifier description (step 136) is generally the same as in the selection of the other broader categories. Thus, the process begins with obtaining existing sequential identifier descriptions from the sequential identifier table 74 in order to display related identifier descriptions to the user (step 136A). The process for displaying the sequential identifier descriptions (steps 136A-1 to 136 A-5 on FIG. 14) is the

same as the process for the display of the other categories except for access to table 74. Additionally, only sequential identifiers that are subordinate to or included within the previously selected sub-segment will be retrieved for display to the user. Otherwise, a description of the "display" process has already been substantially described with the other processes.

Also similar to the previous selection processes, the user decides if the proper sequential identifier description has been displayed (step 136B). If a proper sequential identifier description is available, it is selected for association to the new item (step 136E). If, however, none of the displayed sequential identifiers adequately describe the item or item type, a new sequential identifier is created (step 136C).

Generation of the numeric UIPC sequential identifier of the native UIPC will be a managed, semi-random creation process. If the categories above the sub-segment level are new, the UIPC sequential identifier will first be assigned a four digit logical start number. The start number is generated randomly (by known random number generators) upon creation of each new UIPC industry/segment/sub-segment sequence. Random number generation is used to ensure that no obvious commonality of codes appears when codes are assigned to the items as a further security measure to prevent tampering or unauthorized copying of the codes.

If the item is associated with a sequence that already has industry, segment and sub-segment associated to a sequence, the number for the sequential identifier is formed by adopting the number residing on the

corresponding Next Number Available fields 32 stored on the UIPC native data constants table 78 where all fields 32 are stored for all sub-segments. This field was calculated previously by subtracting 1 from the last number assigned to a sequence. Once the next number is assigned to a sequence, the field is recalculated by subtracting one from the number that was just assigned to obtain a new next number available, which is written to the Next Number Available Field 32 associated with the sequence. Note that a number of '0000' is valid in this system such that subtracting one from 0000 will result in starting the count over at 9999.

After the sequential identifier is calculated, the sequential identifier description is obtained (step 136D) either because it is already present on the UIPC system 10 from the registration form input or submitted by the user, or it is retrieved after requesting the description from the user on another form on the UIPC web site. Both the number and the description are then transmitted for storage to the sequential identifier table 74, and the new description and number are selected for the new item (step 136E).

Referring to FIG. 15, after selection of the sequential identifier, a product uniqueness test (step 138) is performed to prevent duplicate entries and to ensure that the new textual sequential identifier, and in turn the entire sequence, is in fact unique. This is accomplished by comparing the input sequential identifier description to those existing in the sequential ID table 74 (step 138A). If an identical match is found (step 138B), the new sequential identifier number is erased and the existing number is substituted (step 138C).

If the descriptions are merely similar, the user is asked to either select the sequential identifier with a similar description to replace their entry or to reconfirm that their entry is unique (step 138C also).

Referring to FIG. 16, the next step includes creating or storing the UIPC descriptor (step 140), which involves entering the UIPC short description (for field 44) input by the user into the short description database 76 (step 140A). Either through the registration form or subsequent inquiry (step 140B), the user indicates if the description must be provided in another language. If another language is required, the language is selected (step 140C), and the description is translated into that language with the use of language tables 80 and entered into the description database 76 (step 140D). Thereafter, the process loops back to step 140B for entry of more languages. When no more languages are required, the process proceeds to store the required references for the item.

Referring to FIGs. 17-19, steps 142, 144 and 146 are the processes for entering the image, video and audio references, respectively, for the new item. Each process includes entering the full internet URL, name and type of image, video or audio (steps 142A, 144A, and 146A respectively). The remainder of these processes includes providing different languages for each reference name, etc. using the same multi-lingual process from FIG. 16.

Referring now to FIG. 20, the UIPC code generation (step 148) first includes obtaining (or creating upon first instance) the data in the general information fields such as date of creation (step 148A), date of last

amendment (step 148B), Logical Start number for sequential ID (step 148C), Next Available ID number (step 148D) and the Logical/initial source (step 148E) for the item. Links are then established and stored in the link table 84 between native codes (associated industry/segment structures) that can include the present item (step 148F).

Referring to FIG. 21, the actual distribution number is then generated (step 148G) by concatenation of all the native UIPC elements (step 148G-1) into the 10 digit sequence. Then, the encoder 86 applies the algorithms as known in the art (step 148G-2) and the check-digits are added to form the 12 digit distributed code, which is then saved in the native data table 82 (step 148G-3). The uniqueness of the distributed code is then checked against the other existing distributed codes (step 148G-4 and 148G-5). If it is not unique, encoding is reapplied (step 148G-6) and the number is rechecked (step 148G-4 and 5).

Once a unique number is established, the approved distributed code is outputted to the distributed UIPC export tables 88 (step 148G-7). Thereafter, the obtained descriptive text, image, video and audio reference links, dates and logical start number are stored at the distributed UIPC table 88, or at the very least are linked and associated with the distributed code for the new item (steps 148G-8 to 148G-14).

Finally, the next available sequential identifier number is updated (step 148G-15) at the native data constants fields or tables 78 and cross-links are established to other category tables for the new item when it can be included

within other categories (step 148G-16). Additionally, all amendments from the current system 10 are outputted to all distributed tables 88 when more than one exists as explained below for FIG. 31.

Similarly, step 150 of FIG. 22 is provided when more than one UIPC system 10 exists for updating the information on all UIPC systems. This process is described in more detail with the description of FIG. 31 below.

In addition to the new item process upon registration, the UIPC system 10 also provides a separate process for adding a new item after a search for the item, which is also controlled by the inventory protocol 60. During any of the searches for an item on the UIPC web site, when the item does not appear, the user is presented with the option to enter a new item. If selected, a temporary UIPC code will be issued for the user's item, the user will be issued a distributed code together with a notice of change of intent which is a form to update or edit information already on the UIPC system 10. The temporary UIPC code, together with its associated description, are passed into Content Validation buffers either on server 22 or database 20 to wait actual validation.

In the preferred embodiment, the data validation uses manual intervention to ensure that the native code number is legitimate. The manual intervention may also be used to verify the distributed code integrity by ensuring that the proper checksums are being used.

If the inventory protocol 60 finds that categories for the new item already exist as a current live UIPC by following the procedures of FIG. 6, then the temporary UIPC code is deleted and an e-mail to the user that

requested the new item insertion is sent, confirming that the new unique item being registered will be associated with an existing UIPC. The e-mail also requests confirmation that the existing UIPC and textual description accurately reflects the new item being registered.

If the inventory protocol finds that the new item also needs new categories, and in turn a new native code, the temporary native code and distributed code are passed for insertion as an actual new UIPC, again, generally according to the process of FIG. 6. An e-mail is then sent to the user that requested the new item insertion, confirming that the actual UIPC (and textual description) to be used is correct.

Search Processes

Referring to FIG. 23, the Dynamic Uplink Protocol 62 has a search mechanism 90 that provides the searching formats available to the user or visitor of the UIPC web site. FIG. 23 shows logical representations of the seven different searches or searching features that are available with the UIPC system 10. The actual physical presentation of the searches will alter depending on the browser that is used by the UIPC service provider.

The seven searches provided include a UIPC distributed code search 152, a textual description search 154, a full or partial name entry search 156, a Look-See locator 158, a foreign language search 160, UIPC tag locator 158F and product description search 164. These searches or features are provided on a UIPC web page in formats as known in the art, examples of which are provided on FIGs. 32-33. Many different ways of providing a search web

page exist, and it will be appreciated that FIGs. 32-33 are merely examples and in no way limit the formats, aesthetics or structure of the web page available for searching in accordance with the present invention.

Referring to FIGs. 24 and 32, the most direct way to search is to perform a distributed code or UIPC code search that uses the distributed code as an initial parameter for the search of any type of item. Through this system, the UIPC Dynamic Uplink Protocol 62 provides a unique, global identifier for any given category of article, product, commodity or service by using the distributed code.

For a search on a UIPC web page 166 displayed on a client system 14 or server system 16, a search request form, window or box (provided as known in the art) has a blank field 170 where a customer or user can fill in an entire 12 digit distributed code, including the '.' delimiters, and submit the form to the UIPC system 10 (step 152A). The UIPC system 10 validates the number being sought by looking it up on the distributed code table 88 (step 152B). If it is not valid, a new number is requested, and if it is valid, the UIPC system 10 looks up the associated description of the code (categories), which is then displayed (step 152C). In the preferred embodiment, the distributed code is not decoded since the distributed code is directly associated with the native code data in the nested tables of the database 20. However, decoding methods as shown in the art can be employed.

If the distributed code is referenced by a number of different categories (industry/segment), the links to each of the categories is displayed (step

152D). The user must then select the desired category (step 152E), which displays the item descriptions associated with that category (step 152F).

If, however, only one category is associated with the distributed code, the description for the items associated with the code will be displayed immediately to the user. Since the data for the items are stored on the UIPC system 10 itself, for these items, they can be located in a one-step operation. In either case, once a desired item description is displayed, the user may select it (step 152G) to jump to the web site or references provided for that item.

Referring to FIGs. 25 and 32, the Dynamic Uplink Protocol also provides for searching by textual description (154). One type of textual description search is a category or micro-categorization search. As explained previously, the textual description of each category - industry/segment/sub-segment/sequential identifier - is stored in tables 68, 70, 72, 74 for all UIPC categories. These tables are used by the search mechanism in a textual search.

As shown on FIG. 32, a field for inputting specific categories 172 is provided on the web page 166. The user may enter category names (step 154A) which are then matched against the UIPC category descriptions in the tables 68, 70, 72 and 74 (step 154B). Any near or exact matches are displayed to the user (step 154C) for the user to select a desired item (step 154D). That item's description is subsequently displayed.

If the user's browser has the capacity, the category search can be performed in a level by level or conventional tree structure process. In other words, the user first searches for the industry or requests a listing of industries

to choose from. Once the user chooses an industry, the user can search for a segment or choose from among a list of segments, and so on for each category along the "tree" or sequence.

The category search, however, can also be performed as a natural language search where all categories for a code may be entered at once in the blank entry field 172. For instance, "coins USA cents indian" may be entered when looking for an indian head penny with a native code that uses those words in the industry/segment/sub-segment/identifier categories.

Referring to FIG. 33, a unique identifier or item description search can also be provided in the same manner as the classification or category search. A web page 174 provides a search window or box 176 that has a blank field 178. The user is permitted to enter either categories or a descriptive words in the field 178 for a natural language search (as is known in the art) of the short description data stored for each associated item on the description table 76. The categories themselves may also be searched. With this format, the search provides the potential to search like a conventional search engine beyond the UIPC system 10.

Additionally, the natural language search terms, depending on the browser language used, can also be locatable via a conventional tree structure display as shown by field 182. A sample list of search results listing the item descriptions is shown at 180.

During any of the category or description field textual searches, the user may optionally select full or partial word matches against the UIPC tree

structure with logical responses. Thus, if a full name is entered, the associated UIPC will be displayed. If a partial name is entered, a list of UIPC categories that possibly match are displayed to the user in a selectable form. In addition, the "New Item" option or tag is provided as explained previously when none of the items on the search list describe the sought category. FIG. 26 is provided to merely show the full/partial name option (step 156A) used with the code search format from FIG. 24. It will be appreciated that the full/partial name option is equally applicable to the textual search format FIG. 25.

Referring to FIG. 27, in another feature of the present invention, frequently used UIPC codes together with their item descriptions can be stored locally using the UIPC distributed 'Look-See' plug-in 54 which provides a Look-See utility or module 158. This utility 158 can be located within the 'Favorites' tab on the user's browser, which ultimately permits the users to maintain their own 'personal' indices of UIPC coded items.

The 'Look-See' indexing module 158 provides users or customers with the ability to store locally (on single or multiple machines) a separate list of details of frequently visited UIPC locations (i.e. a particular category search that a user conducts frequently). These locations were originally found by the UIPC searches mentioned previously and can be stored locally based on a number of different item parameters. For example, the Look See index can store items by the UIPC itself (158A), the textual description (158B) and/or the unique UIPC tag using the UIPC tag feature (158C).

The UIPC tag feature (158C) is provided by the Look-See plug-in and permits a user to add a tag to item(s) associated with a native code and a sequential identifier, resulting in such items being displayed at the top of the Look-See index. This is useful to display another lower or narrower level of categorization when the UIPC code does not indicate a particular or precise item within the UIPC Sequential Identifier. In other words, the tag feature is needed because the UIPC coding typically address the various levels within a data structure so that the actual code reflects the addressable category itself, but not an individual item.

As an example, a user has the Look-See plug-in and is searching or browsing using the following category (level) as the search parameter:

Collectibles/Coins & Bank Notes/US Coins - Silver Dollars/1872

George Smith Eagle

or

UIPC: J3X7.LA8L.518M.

If a search result appears with a list of unique items associated with this UIPC, and if the user decides to add this category or level to their Look-See index, the user clicks a UIPC specified key combination to create a Look-See element (158G). If the user then notices that the 12th item under this particular UIPC is worth tracking (e.g. an item that states "Gold plated 1872 George Smith Eagle with insert pearl U.S.\$699"), the user may highlight this specific item and press a second UIPC specified key combination. This item is now tagged and will appear at the top of the Look-See index.

Furthermore, the Look-See module 54 can also be configured to place this tagged item on the top of any search results when a native code associated with the tagged item is being sought. As shown in FIG. 28, a search result lists tagged items (step 158F-1). The search mechanism 90 will scan the results and match the found items with UIPC tag tables stored locally (step 158F-2). If any matches are found, these items are displayed at the top of the result list (step 158F-3).

Additionally, when a client system 14 has the Look-See index, the search mechanism 90 will look through the index during description (158D) or distributed code searches (158E), and these items will be listed with the results.

Referring to FIG. 29, in another search option, since the UIPC structure stores item descriptions in multiple languages (French, German, etc.), it is possible to conduct a search using words in those stored languages. On a search window, the user will have the option of choosing a language other than English (step 160A) that is available on the distributed UIPC language table 88 if the languages are also indicated there.

The user inputs the search parameters in the selected language (step 160B), and the search mechanism 90 proceeds to find a match at the language table 88 (step 160C). The results are displayed to the user (step 160D), and the user selects certain items from the result list for display (step 160E). The user will then be provided with an option to choose the language for display

(step 160F). The item descriptions in that language are retrieved from the UIPC tables 88 and displayed (step 160G).

Referring to FIG. 30, another feature of the UIPC web site is that it will permit the user to create their own links to UIPC descriptions. Using the distinctive UIPC four-quadrant, clickable logo 184 (for example as shown on FIG. 32), a user can click one of the quadrants to obtain information linked to a particular item (step 164A). The server 22 obtains the information matched to that link (step 164B) and displays the information associated with the item (step 164C) such as industry, segment, sub-segment, sequential identifier as well as further information such as date of creation and updating (step 164D). Each quadrant of the logo 184 can be a link to a different item.

Referring to FIG. 31, in an alternative embodiment of the present invention, more than one UIPC system 10 exists. A central UIPC native host 10 distributes new and amended data on a frequent basis to regional UIPC hosts 98 connected through a broadband distribution bridge 99 as known in the art. Each regional host 98 serves their respective regional area (i.e. uipc.co.uk serves the United Kingdom, uipc.co.za serves South America). The manufacturers and suppliers 16 link via their ISP to their regional host 98 to create or amend content details of the items and codes. Consumers 14 use any UIPC regional host 98 via their browser or Look-See plug in.

Referring to FIG. 22, the last step of the UIPC code creation process 124 of FIG. 6 is a process for updating global UIPC sites (i.e. regional sites 98) to ensure that inserted or amended data is replicated across all sites on a

regular basis. Additionally, constant back-ups are performed to eliminate any single point failures from the UIPC global network of distributed UIPC hosts 98 and 10.

In operation, after backing-up the native UIPC host data (step 150A) and regenerating UIPC tables (step 150B) for the updated data, the updates are placed into an FTP site for downloading (step 150C). Similarly, the regional or current UIPC distributed site performs a back-up (step 150D) and then merges data received from the other UIPC sites (step 150E). The UIPC live status is updated to include the updated data (step 150F) and the process frequently repeats.

The many advantages of this invention are now apparent. A Universal Internet Product Code has a classification based (rather than manufacturer based) native code associated with multiple category levels so that items such as products, services and commodities can be classified for efficient and accurate searches for items associated with a specific native code on a computer network such as the Internet. Since the native code is category based, the UIPC code can be used as a universal code translator to standardize a variety of incompatible manufacturer based codes.

While various embodiments of the present invention have been shown and described, it should be understood that other modifications, substitutions and alternatives can be made without departing from the spirit and scope of the invention, which should be determined from the appended claims.

WHAT IS CLAIMED IS:

1. A method of classifying a plurality of items so that they can be remotely searched on a network, comprising the steps of, for each item of said plurality of items:

receiving a request for registering an item;

receiving data describing said item;

determining if at least one of a plurality of previously created categories already properly include said item;

assigning said item to at least one of said previously created categories when said item is already properly included in the category;

creating a new category associated with said item when none of said previously created categories should include said item;

creating first codes having an entire character sequence corresponding to a combination of said categories including said new categories so that each said first code indicates a type of item;

assigning one of said first codes to said item; and

relationally storing said first code, the category to which said item is assigned, and said data describing said item on a database.

2. The method of claim 1, further comprising the steps of:

searching through said database for a particular type of item and for items associated with said particular type of item, responsive to receiving a request for said search transmitted through the network; and

transmitting a search result list on said network, said list including data for said items associated with said particular type of item.

3. The method of claim 2, further comprising the steps of:

encrypting said first code to form a distributed second code that is viewable by a user;

receiving said second code on said network as an initial parameter for said search;

finding said particular type of item associated with said second code without decoding said second code; and

retrieving data describing said items associated with said particular type of item sought by said user through said network.

4. The method of claim 2, wherein said step of searching includes providing the option to search by matching any of said first codes, said categories and said data describing said items.

5. The method of claim 1, wherein said step of creating said categories is accomplished without directly corresponding to a manufacturer and seller of a item with any said category.

6. The method of claim 1, wherein said step of creating first codes from a character sequence includes the steps of:

generating a plurality of subsets of characters, each subset being associated with a single category; and

combining said subsets to form said character sequence so that said character sequence corresponds to a group of categories where each category is a sub-category of the next broader category when one exists among said categories associated with said character sequence.

7. The method of claim 6, wherein said step of creating first codes includes forming each said first code from a character sequence defined by four said subsets of characters representing categories of industry, industry segment, industry sub-segment and type of item.

8. A universal internet product code system for classifying a plurality of items on a network, comprising:

a registration section for receiving requests through said network for registering items and for receiving data describing each said item;

an inventory protocol including:

an item identifier section for assigning said items to previously created categories when said previously created categories already properly include said items;

a category generation section for creating new categories associated with said items when none of said previously created categories properly include said items;

a first code generation section for creating first codes having an entire character sequence corresponding to a combination of said categories including said new categories so that each said first code indicates a type of item, said first code creation section assigning said items to said first codes; and

a database for relationally storing said first codes, said previously created categories, said new categories and said data describing said items.

9. A universal internet product code system according to claim 8, further comprising:

a search mechanism for searching at least through said database for a particular type of item and retrieving a list of said data describing items associated with said particular type of item, said search being responsive to a request for said search received over said network, and for transmitting said list of items over said network for display of said list.

10. A universal internet product code system according to claim 9, wherein each said first code is a native code encrypted into a distributed second code, said search mechanism being configured for receiving a search based on said second code received from a user over said network, and finding said items associated with said particular type of item corresponding to said second code.

11. A universal internet product code system according to claim 8, wherein said categories are created without directly corresponding to either a manufacturer or a seller of an item.

12. A universal internet product code system according to claim 8, wherein each said category in a plurality of categories corresponding to a single said first code is a sub-category of the next broader category when one exists in said plurality of categories.

13. A universal internet product code system according to claim 12, wherein each said first code is divided into four blocks of characters respectively representing said categories of industry, industry segment, industry sub-segment and type of said items.

14. A universal product code translator, comprising:

a plurality of product codes, each said product code having a unique character sequence with one portion corresponding to a different manufacturer than the manufacturers associated with any of the other said character sequences, and another portion relating to a similar type of product produced by all said different manufacturers; and

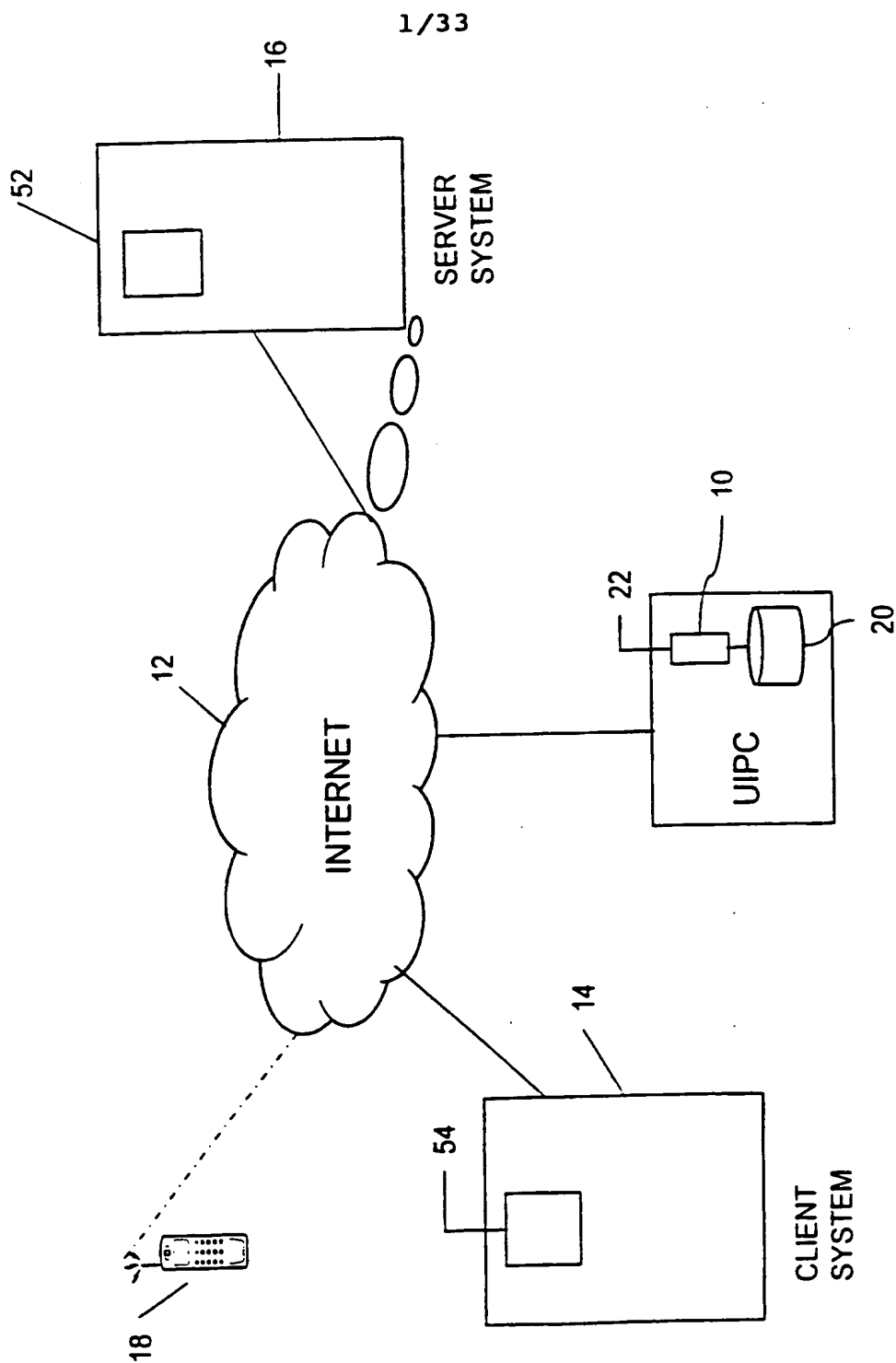
a translator having an inventory protocol for replacing said plurality of product codes with a single universal product code so that the need for said plurality of product codes is eliminated, said single universal product code

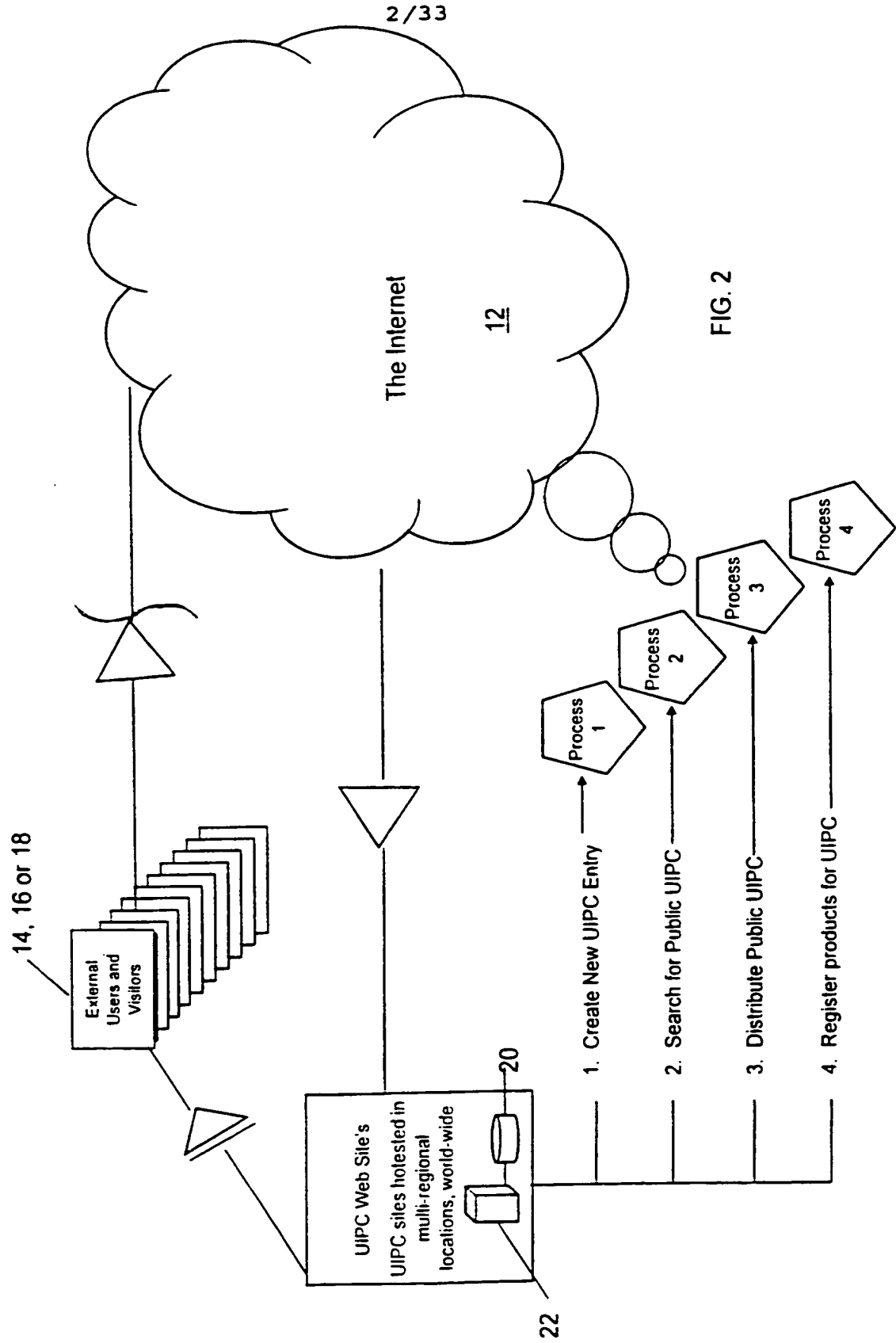
having a character sequence indicating said type of product without corresponding to a manufacturer.

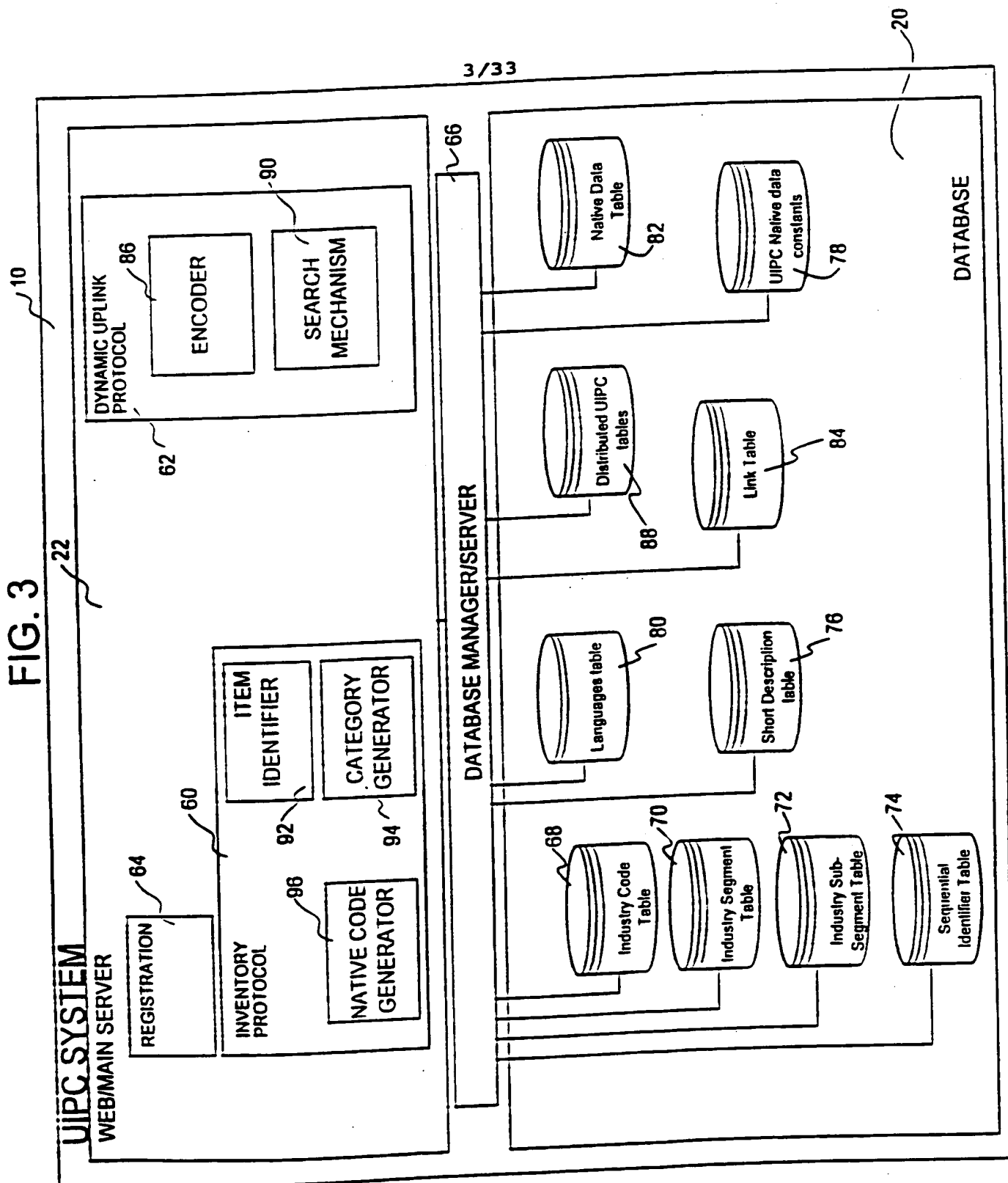
15. A universal product code translator according to claim 14, wherein said universal product code includes a plurality of categories, each said category being a sub-category of the next broader category when one exists within said plurality of categories.

16. A universal product code translator according to claim 15, wherein said universal product code is divided into four blocks of characters respectively representing said categories of industry, industry segment, industry sub-segment and said type of product.

FIG. 1







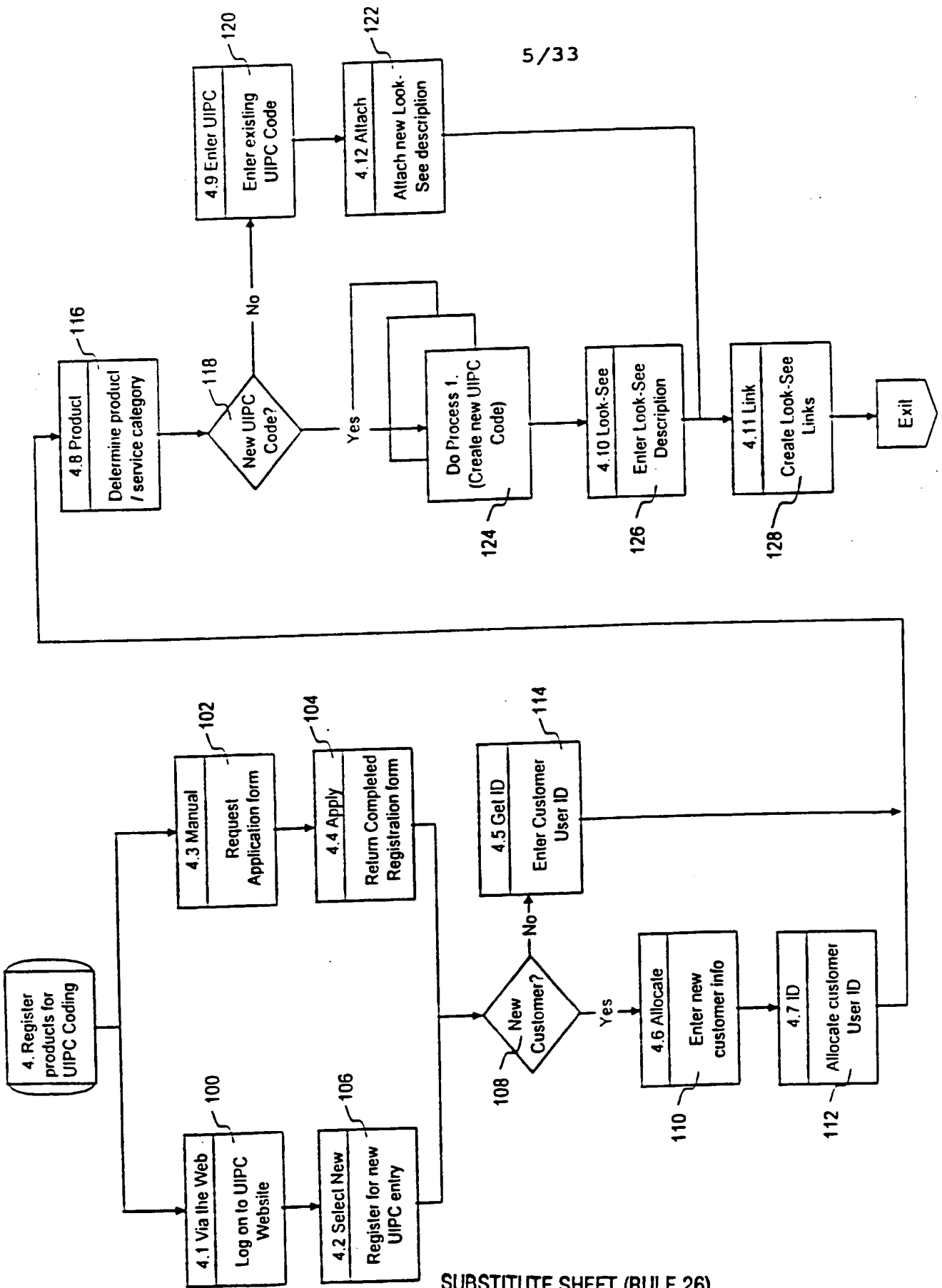
4/33

FIG. 4

56

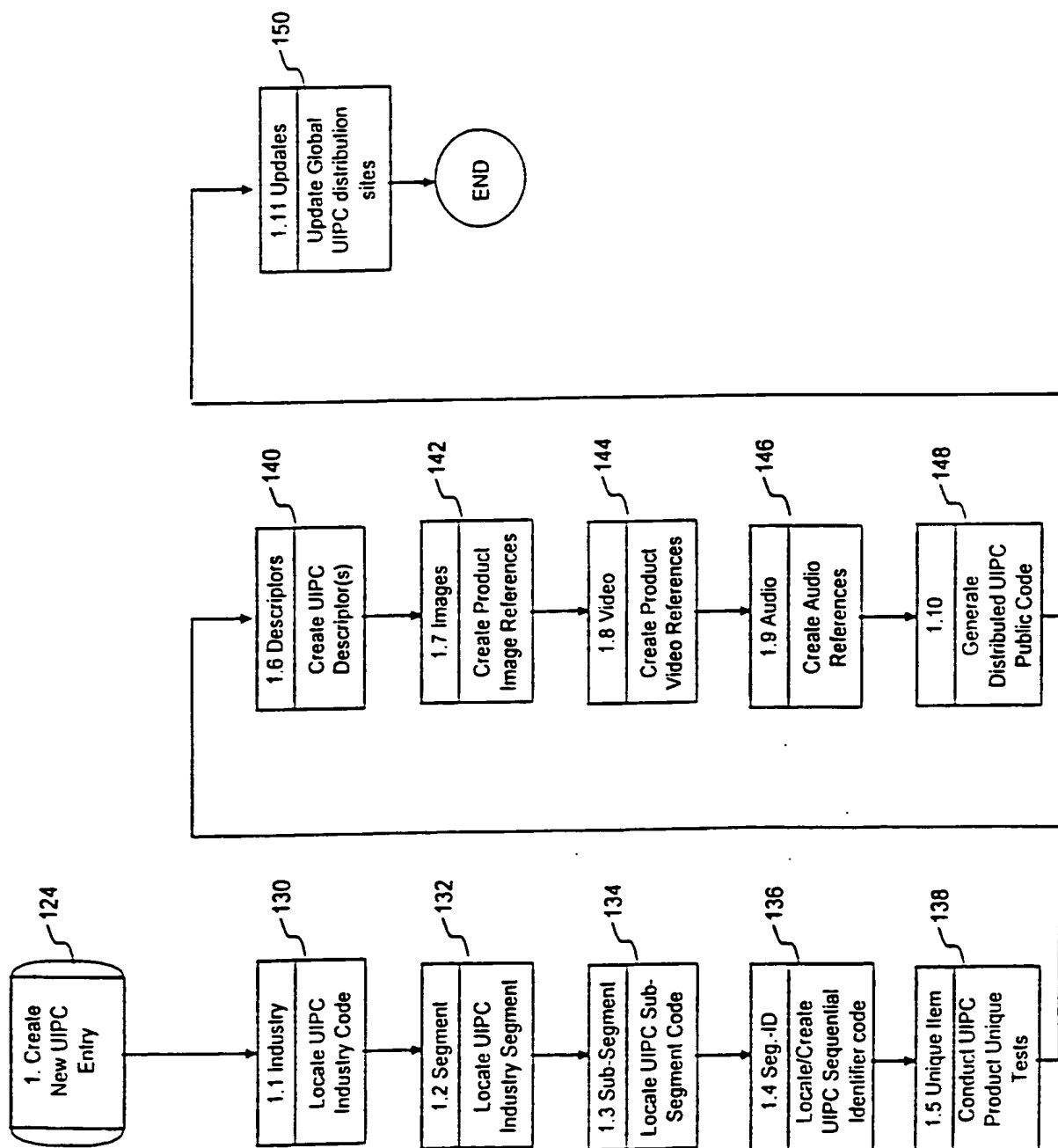
SAMPLE NATIVE CODE DATA		
24	INDUSTRY	AB DESCRIPTION
26	INDUSTRY SEGMENT	CD DESCRIPTION
28	SUB-SEGMENT	EF DESCRIPTION
30	SEQ. IDENTIFIER	1234 DESCRIPTION
32	NEXT NUMBER AVAILABLE	
34	DATE OF CREATION	
36	DATE OF LAST AMENDMENT	
38	LOGICAL START NUMBER	
40	LOGICAL/INITIAL SOURCE OF ITEM	
42	LINK CODES	
44	DESCRIPTIVE INFORMATION DESCRIPTIVE	
	DESCRIPTIVE INFORMATION FRENCH	
	DESCRIPTIVE INFORMATION GERMAN	
	DESCRIPTIVE INFORMATION JAPANESE	
	DESCRIPTIVE INFORMATION SPANISH	
46	IMAGE REFERENCE ENGLISH	
	IMAGE REFERENCE FRENCH	
	IMAGE REFERENCE GERMAN	
	IMAGE REFERENCE JAPANESE	
	IMAGE REFERENCE SPANISH	
48	VIDEO REFERENCE ENGLISH	
	VIDEO REFERENCE FRENCH	
	VIDEO REFERENCE GERMAN	
	VIDEO REFERENCE JAPANESE	
	VIDEO REFERENCE SPANISH	
50	AUDIO REFERENCE ENGLISH	
	AUDIO REFERENCE FRENCH	
	AUDIO REFERENCE GERMAN	
	AUDIO REFERENCE JAPANESE	
	AUDIO REFERENCE SPANISH	

FIG. 5



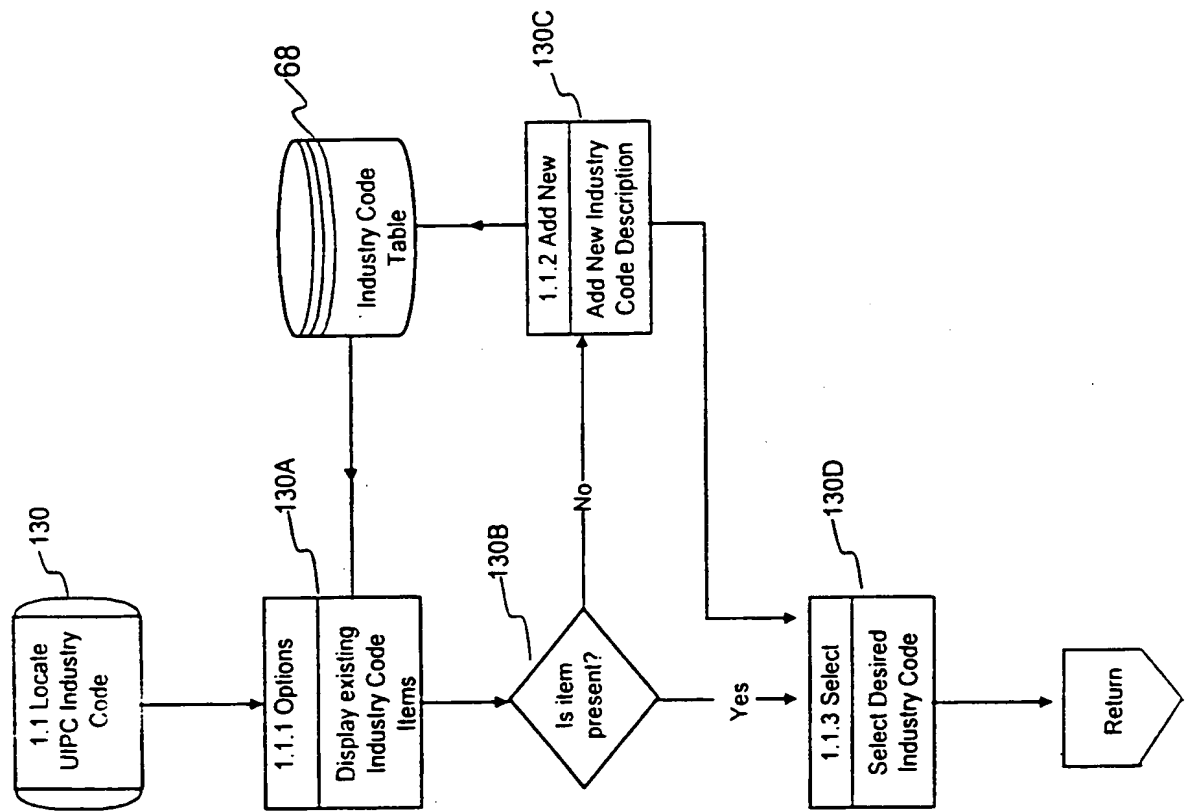
6/33

FIG. 6



7/33

FIG. 7



8/33

FIG. 8

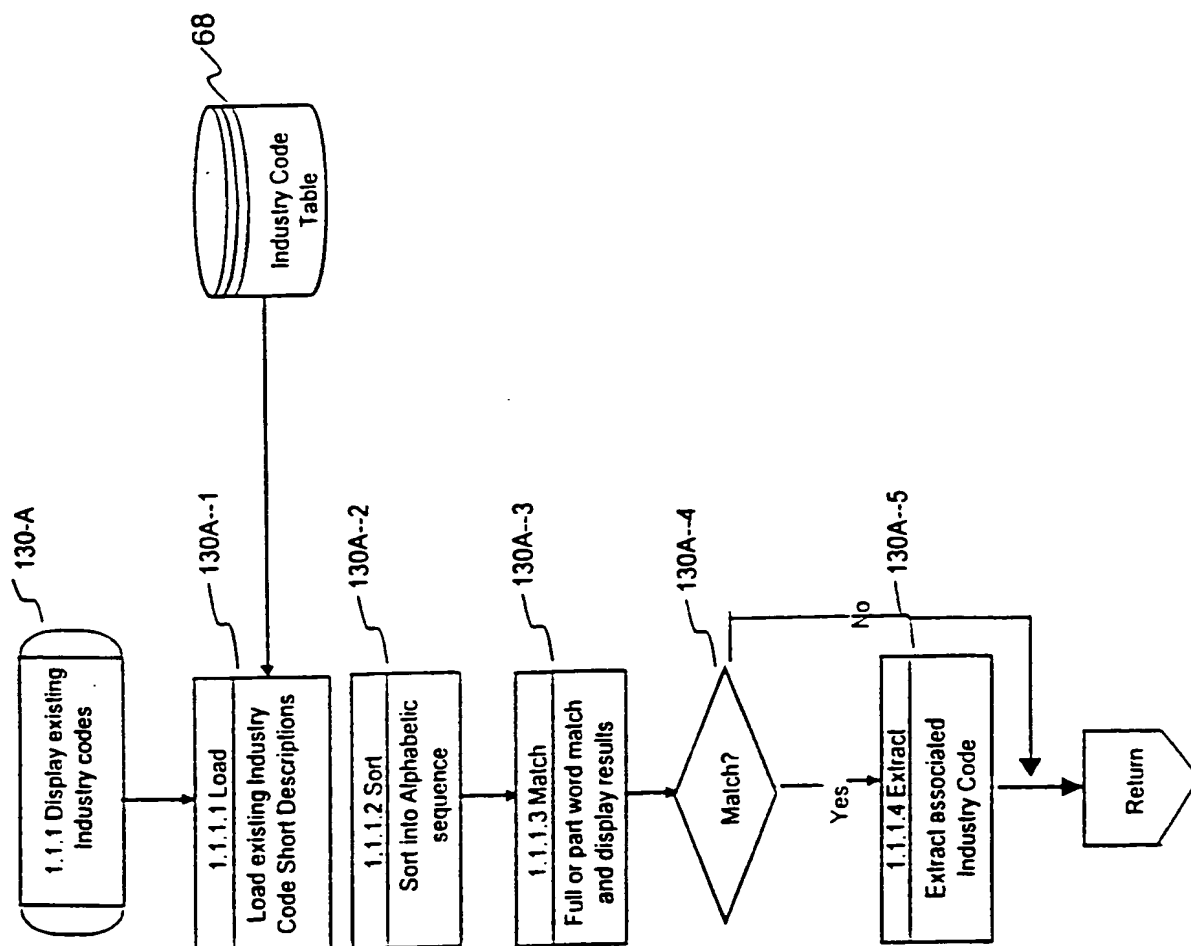
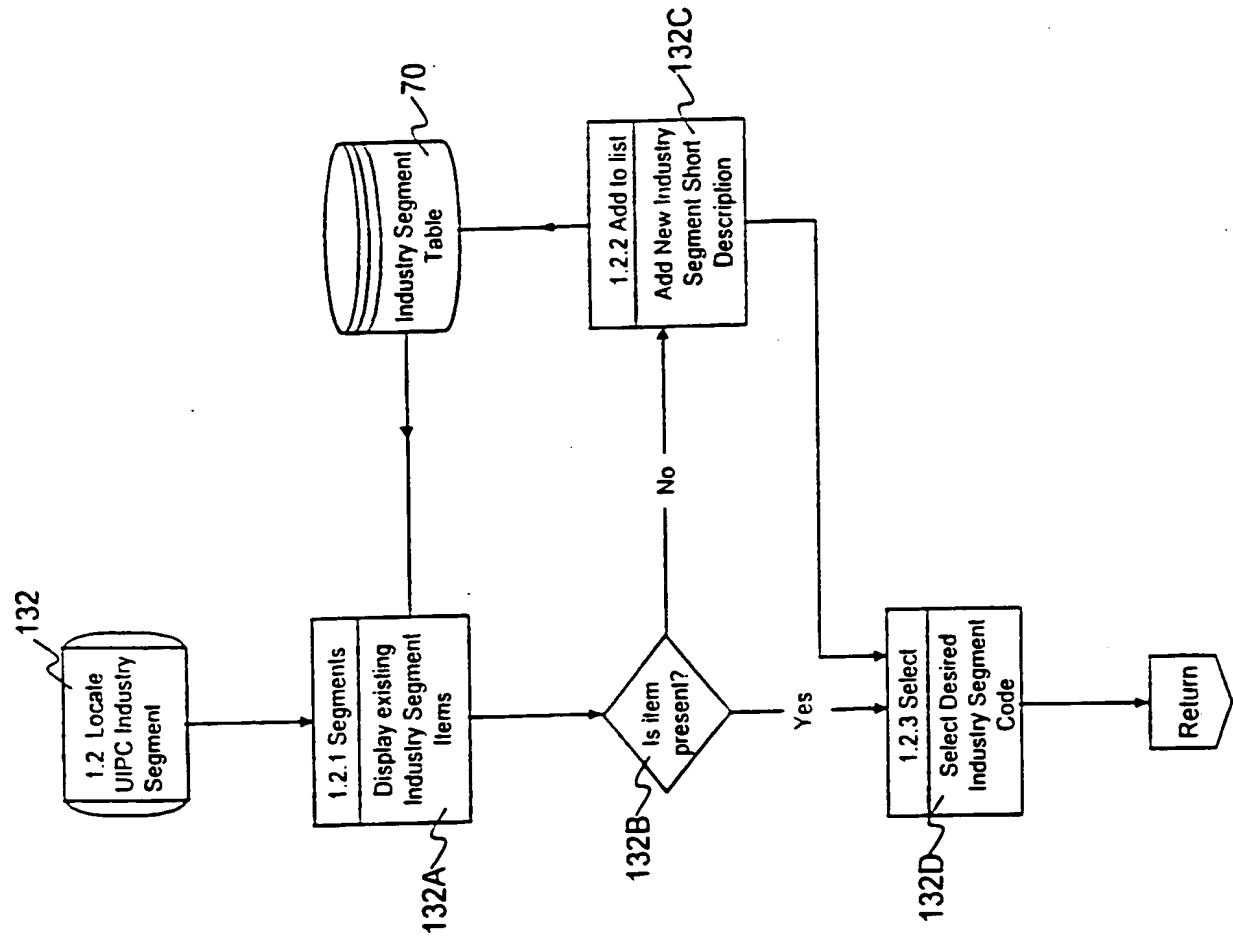
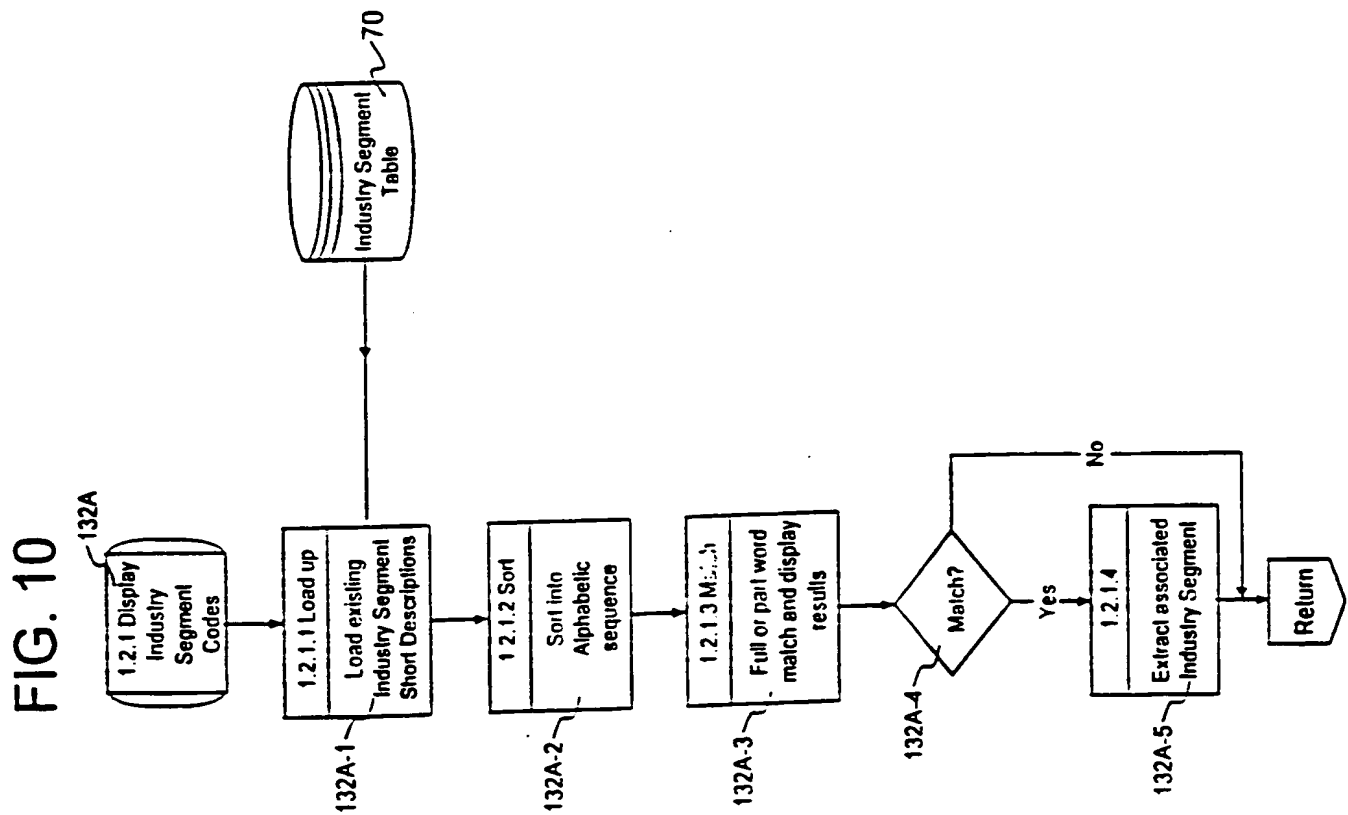


FIG. 9

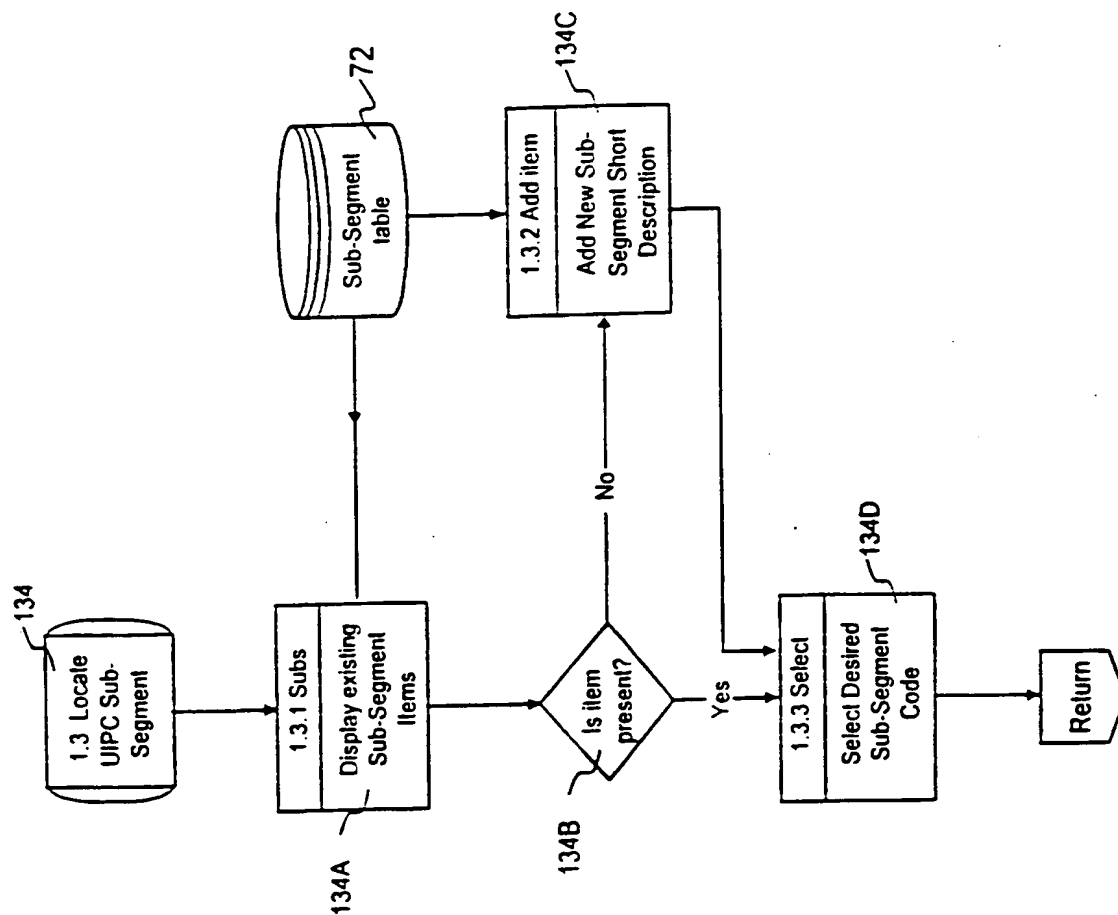


10/33

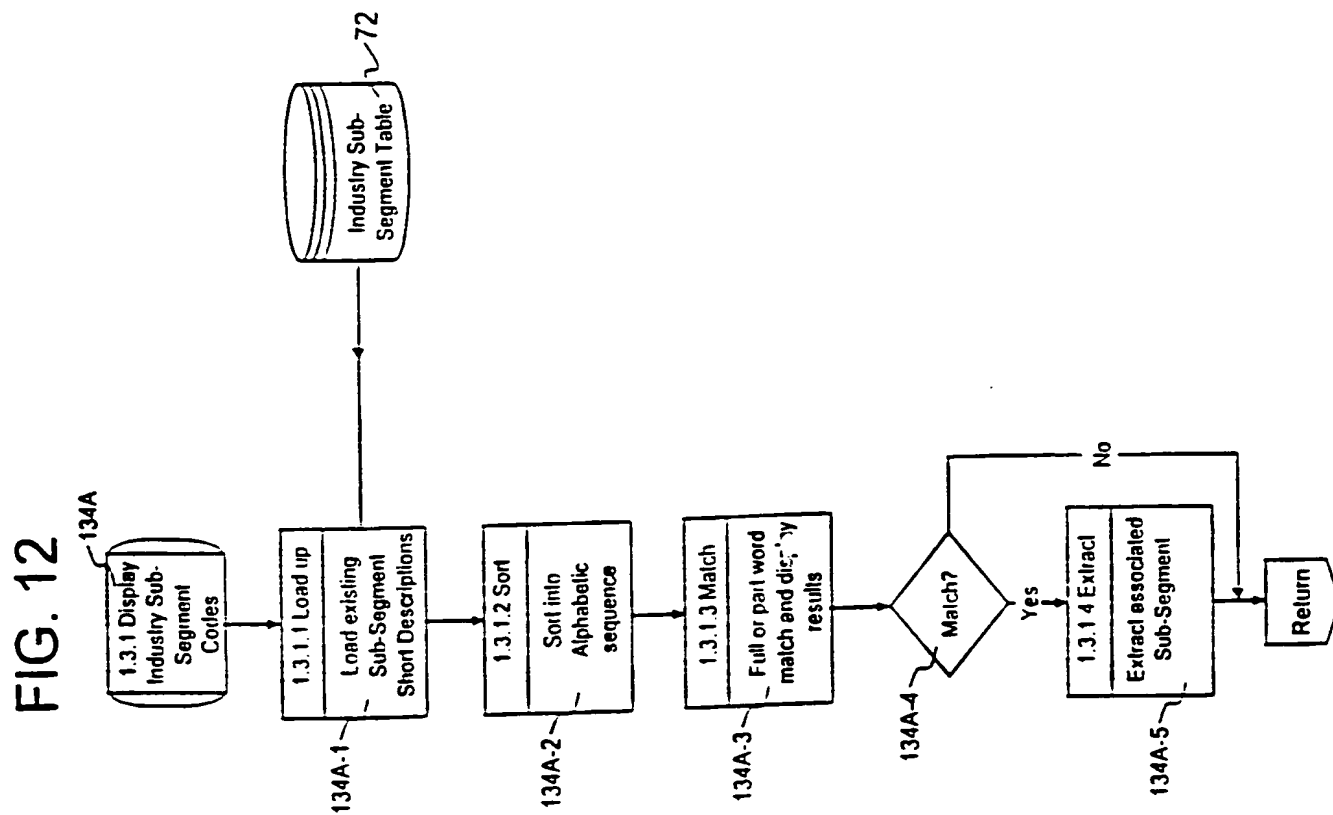


11/33

FIG. 11

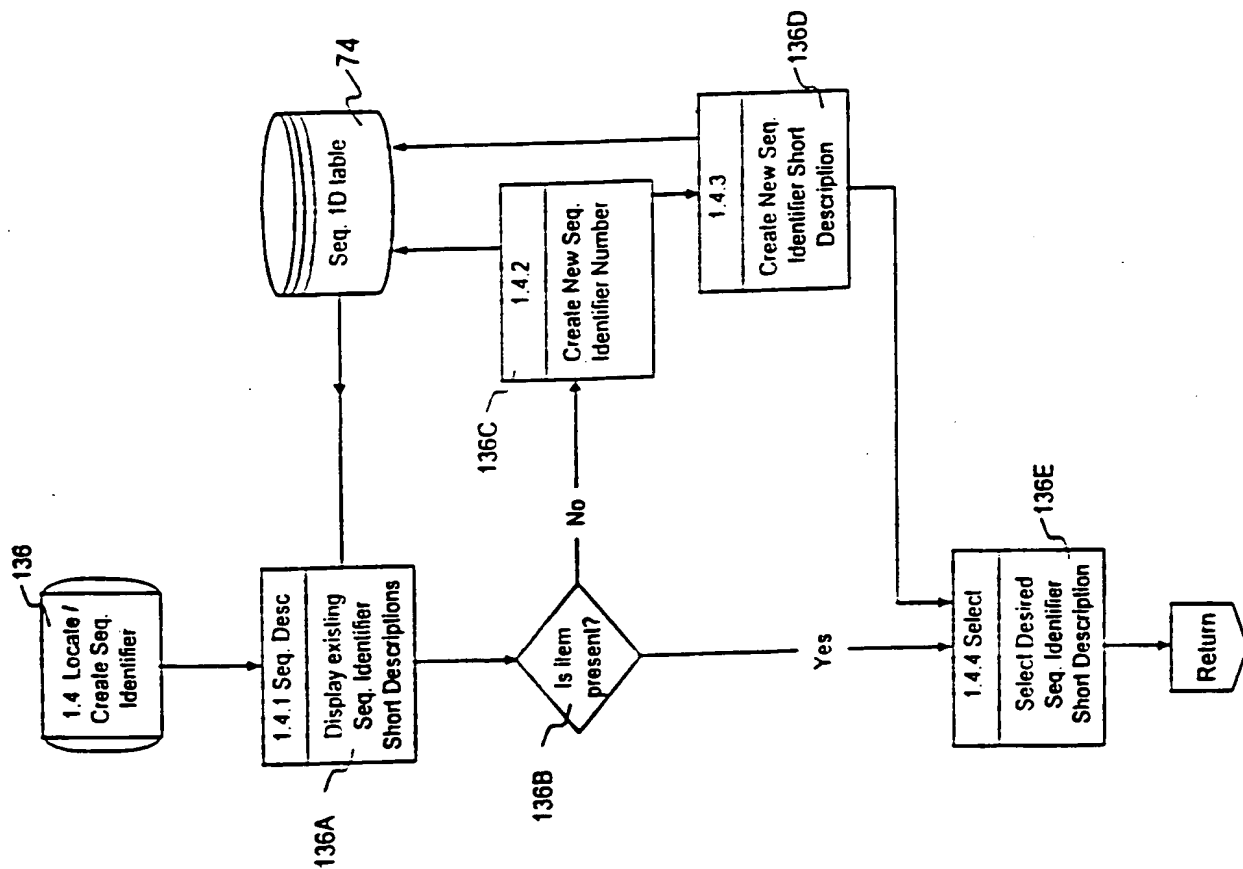


12/33

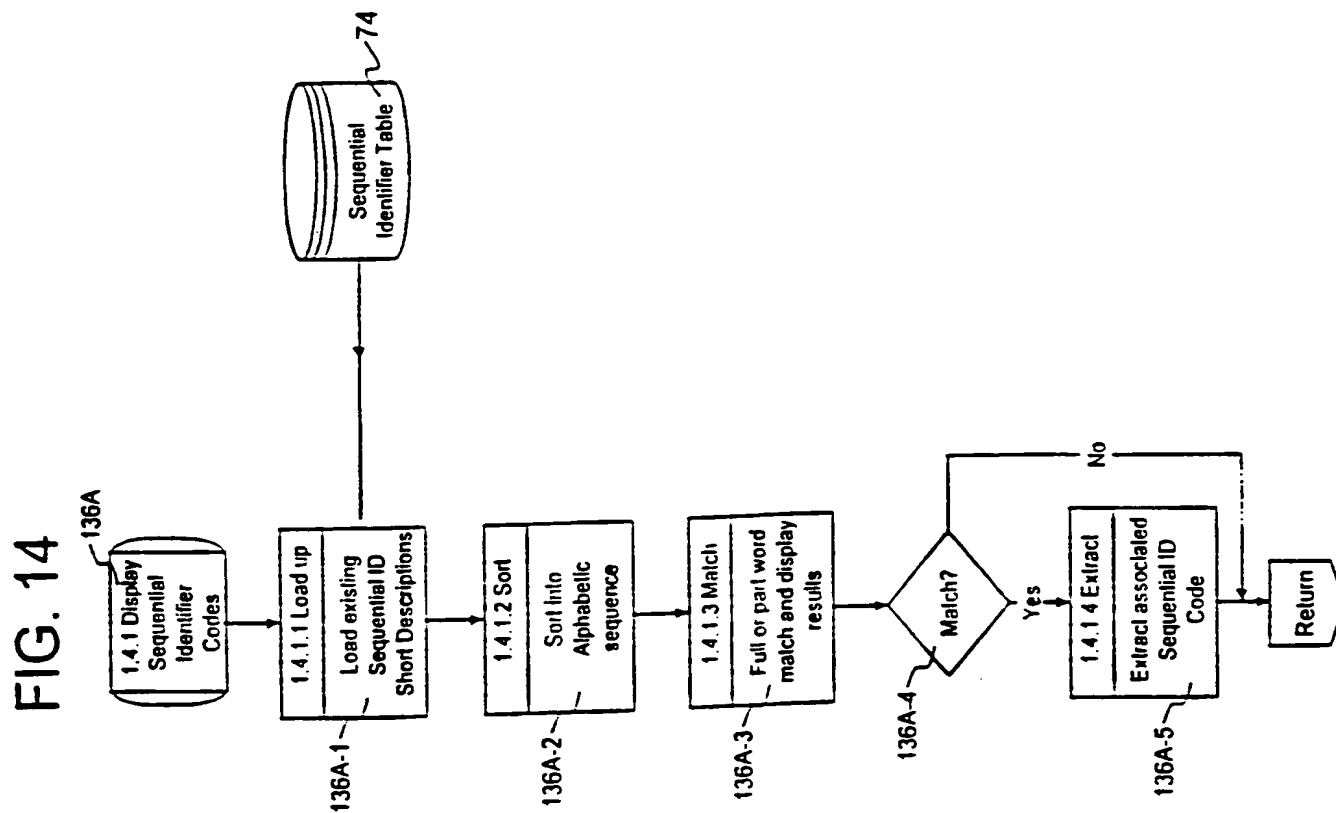


13/33

FIG. 13

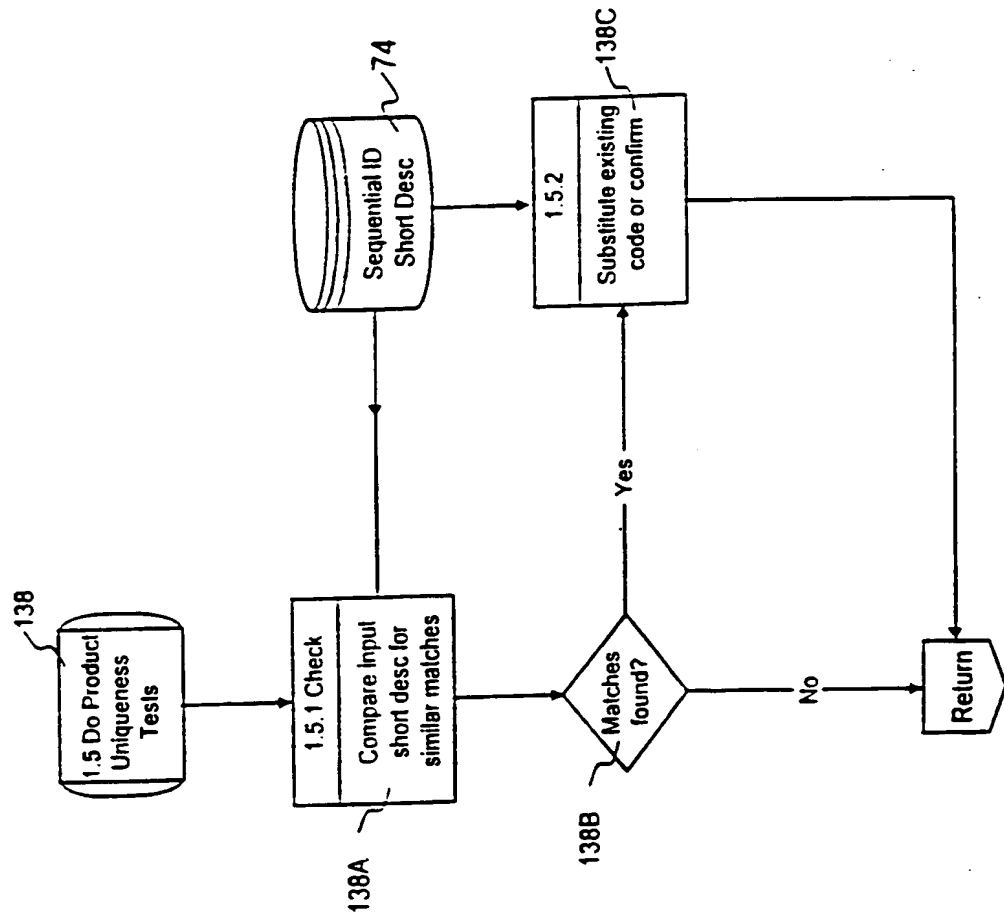


14/33



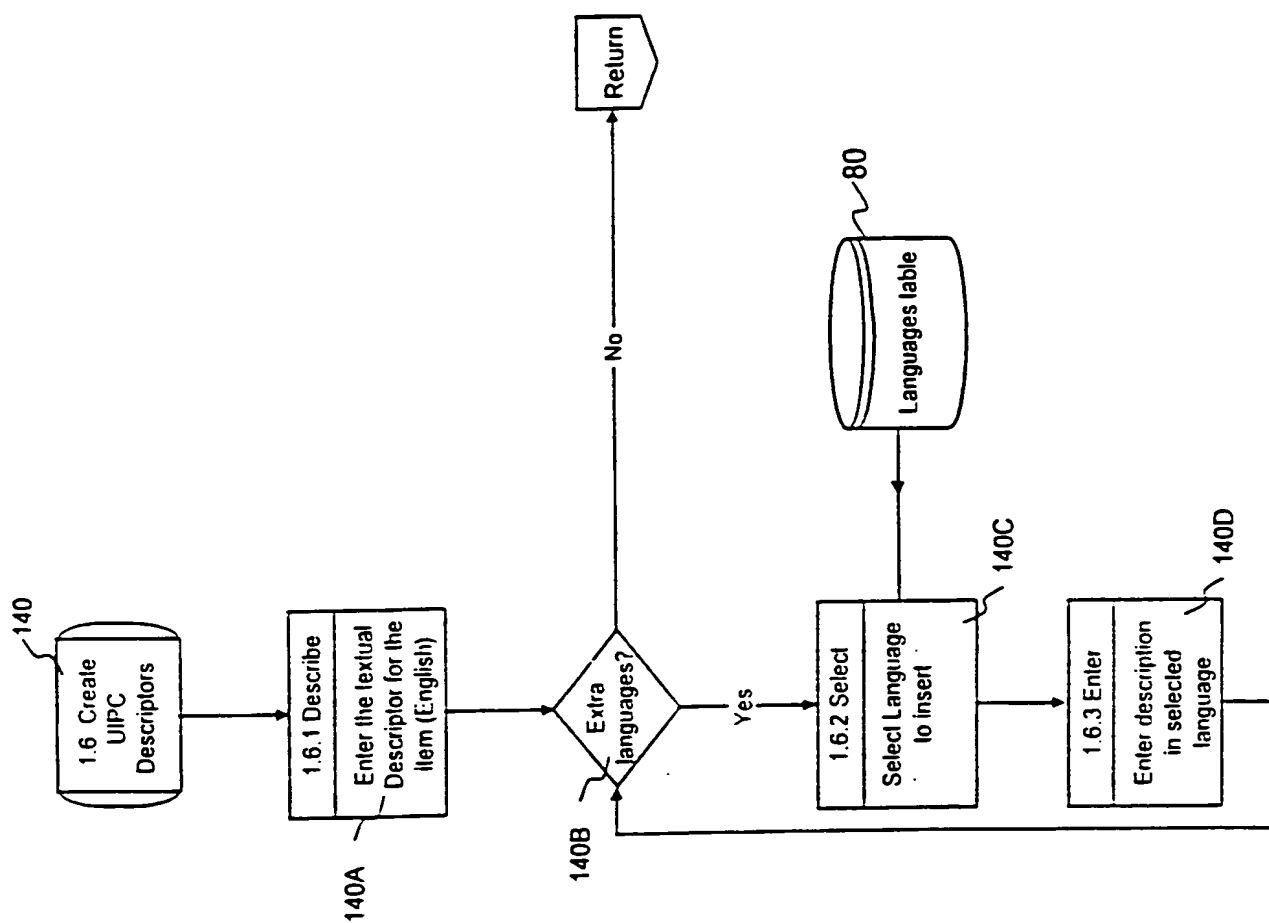
15/33

FIG. 15



16/33

FIG. 16



17/33

FIG. 17

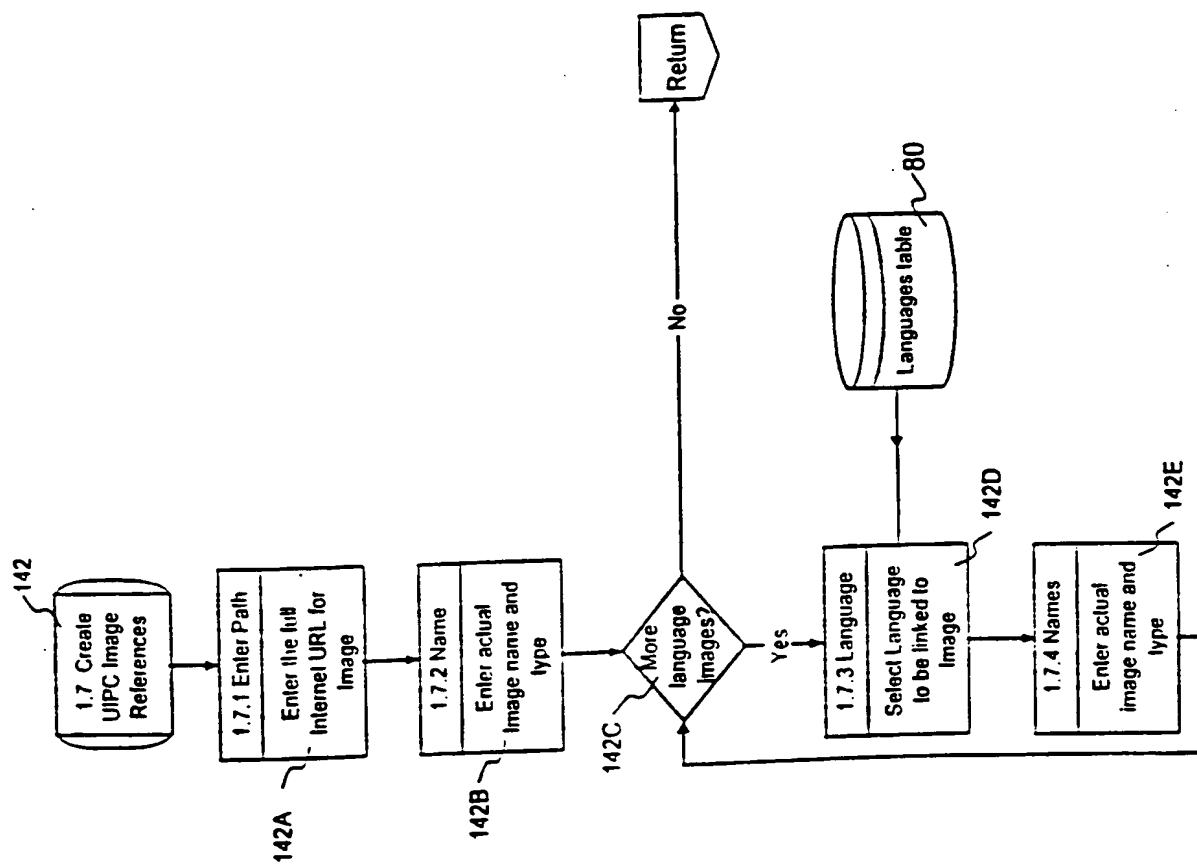
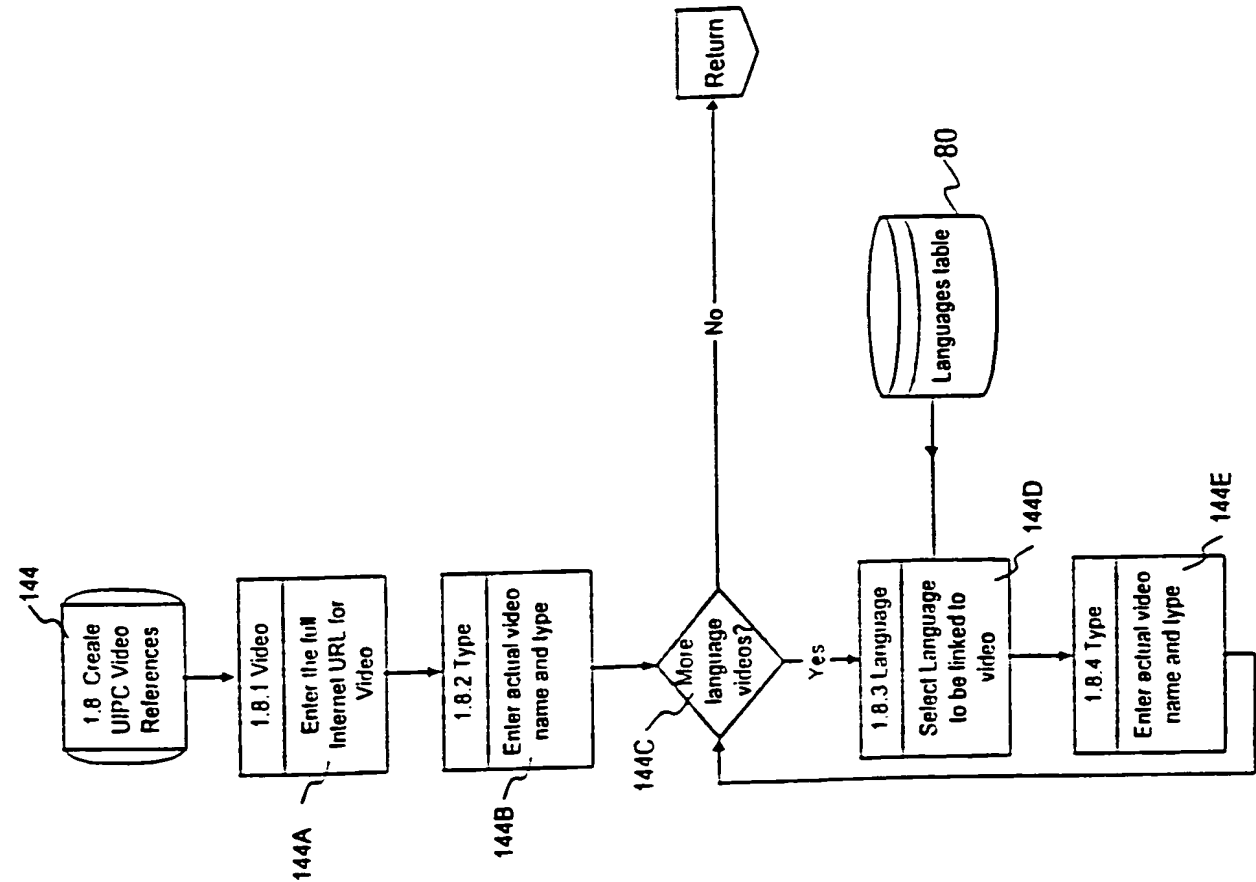
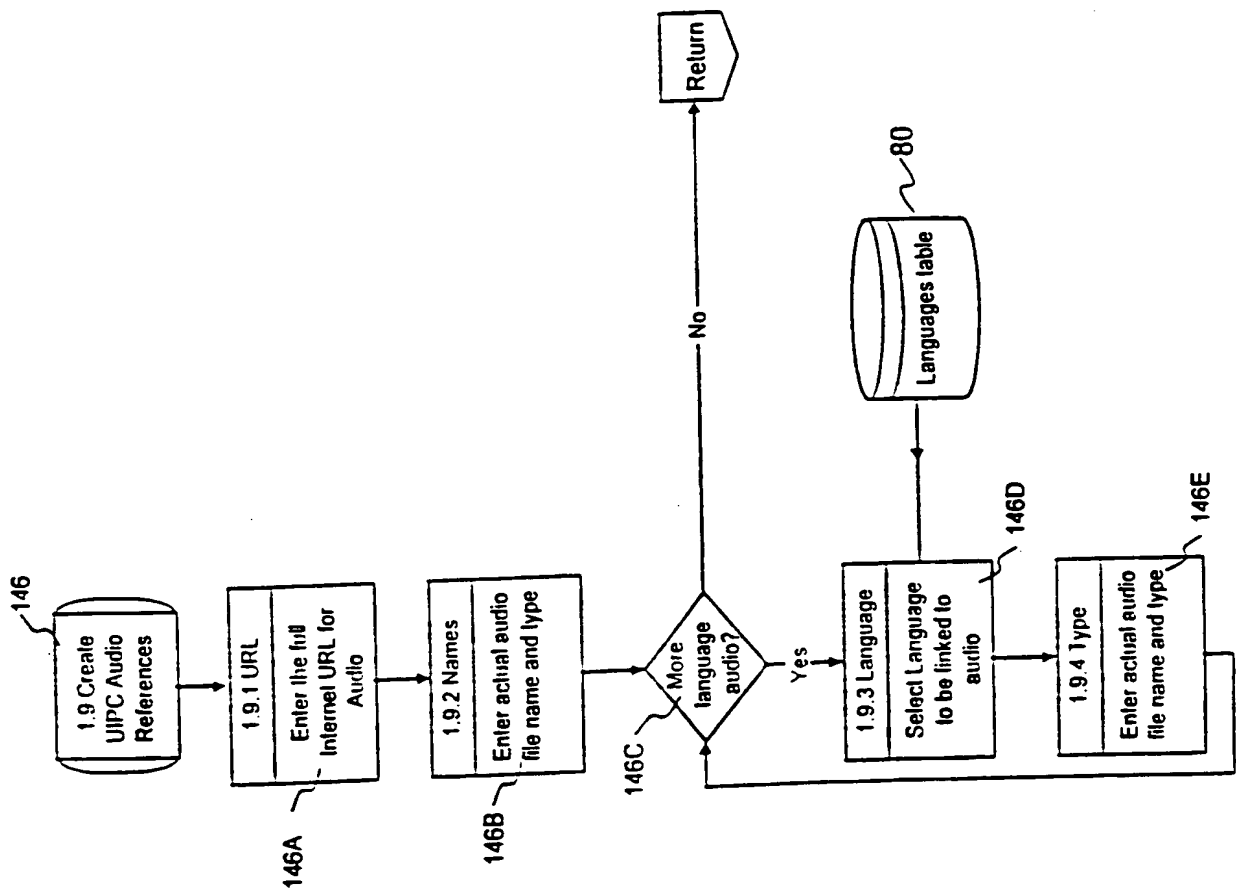


FIG. 18



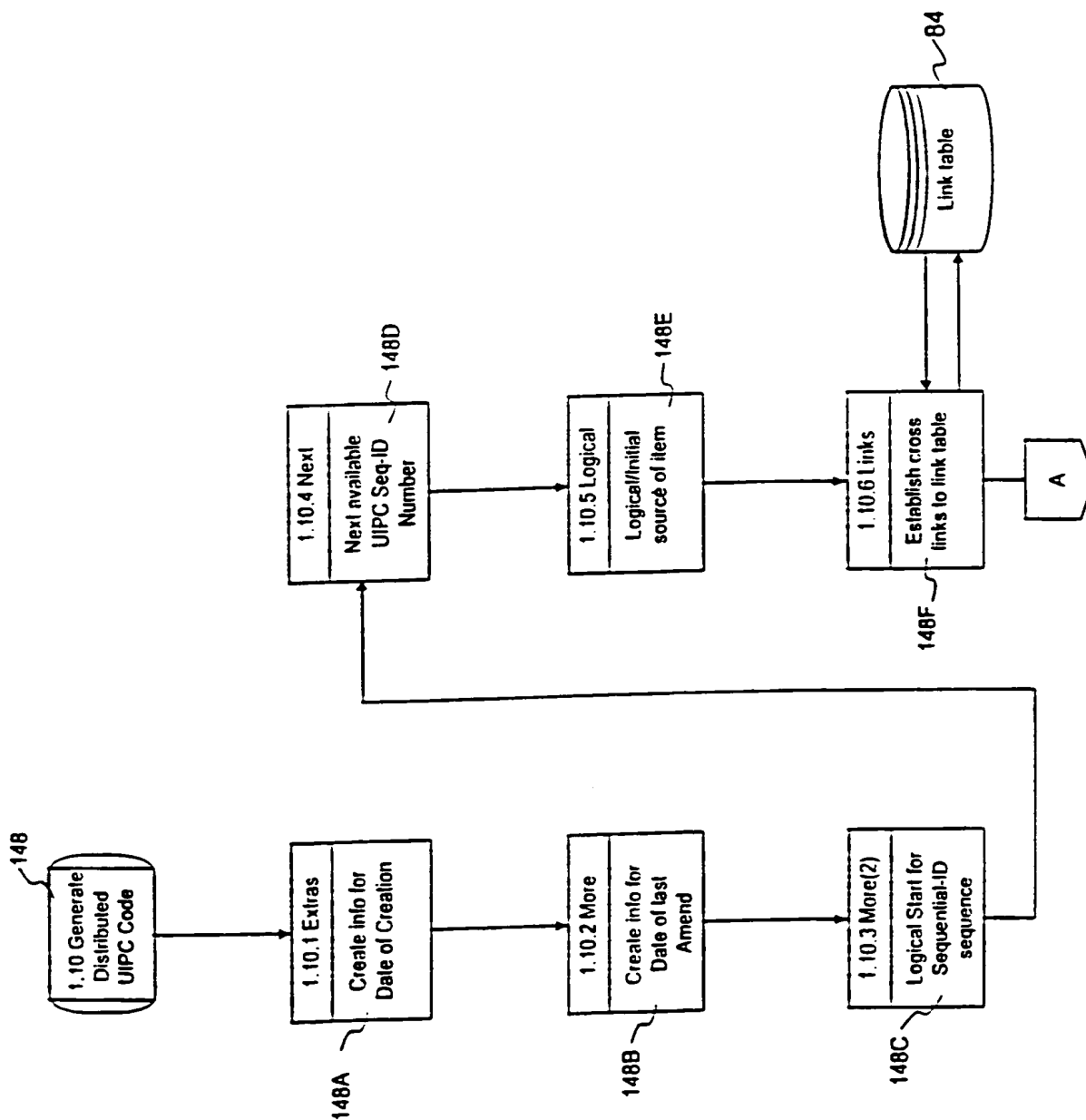
19/33

FIG. 19



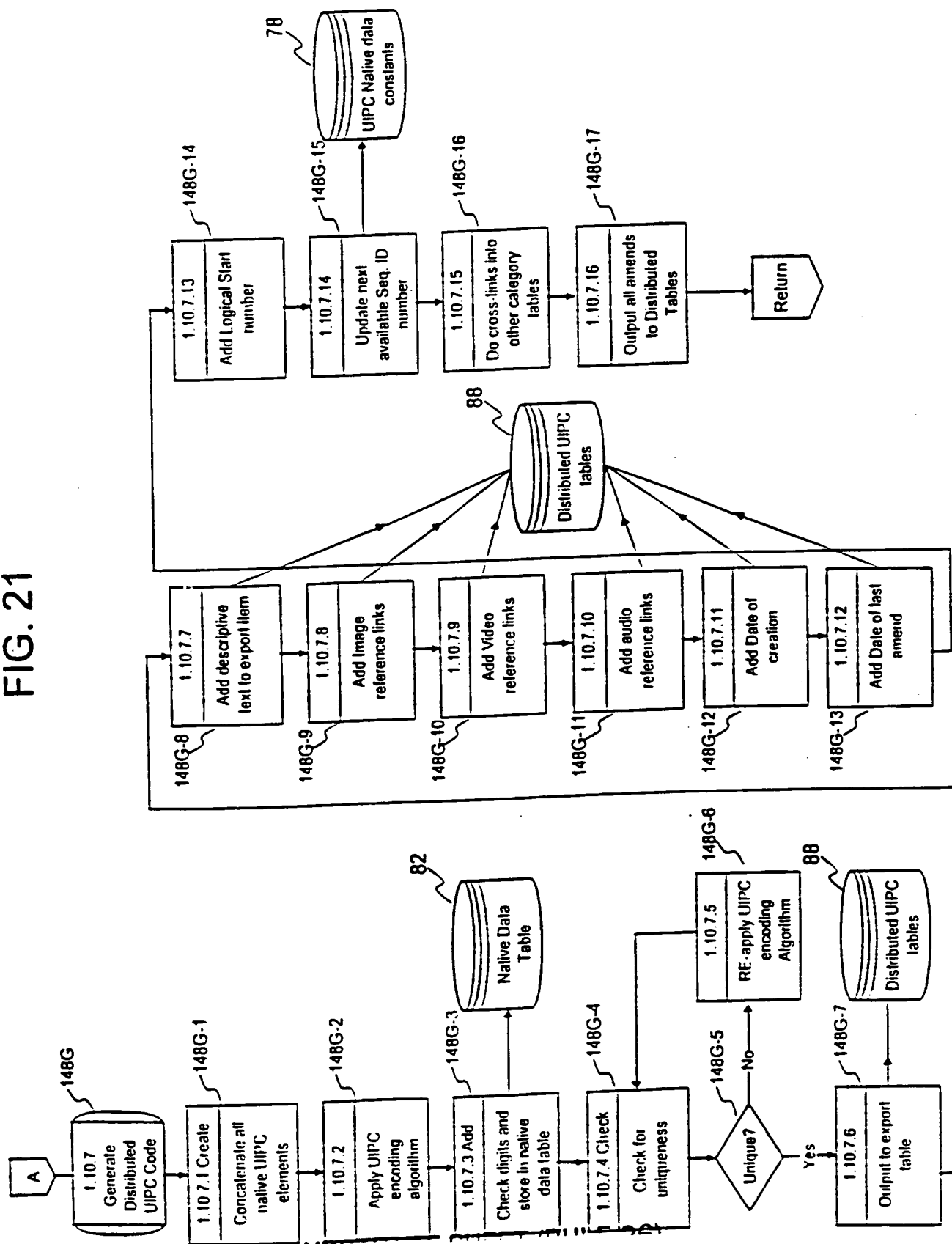
20/33

FIG. 20



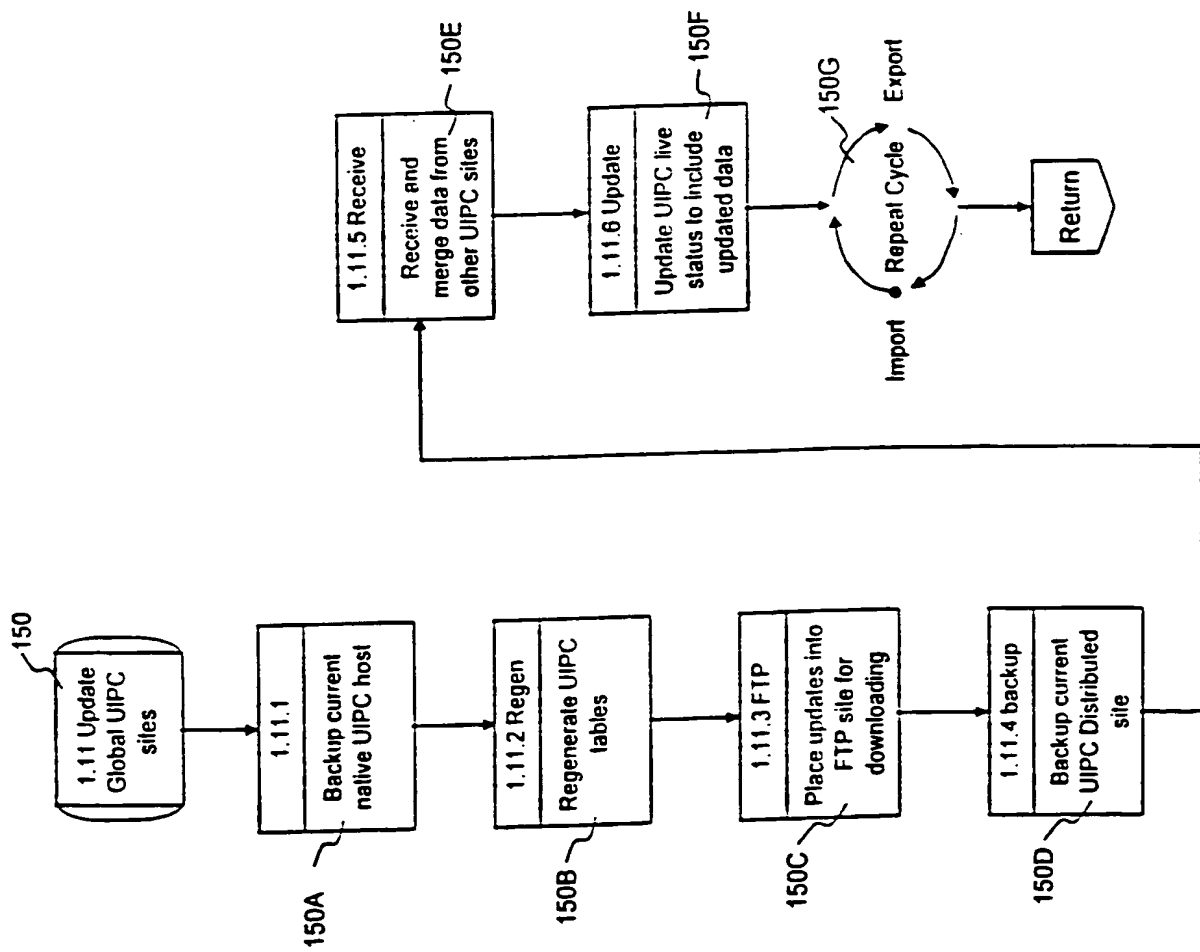
21/33

FIG. 21



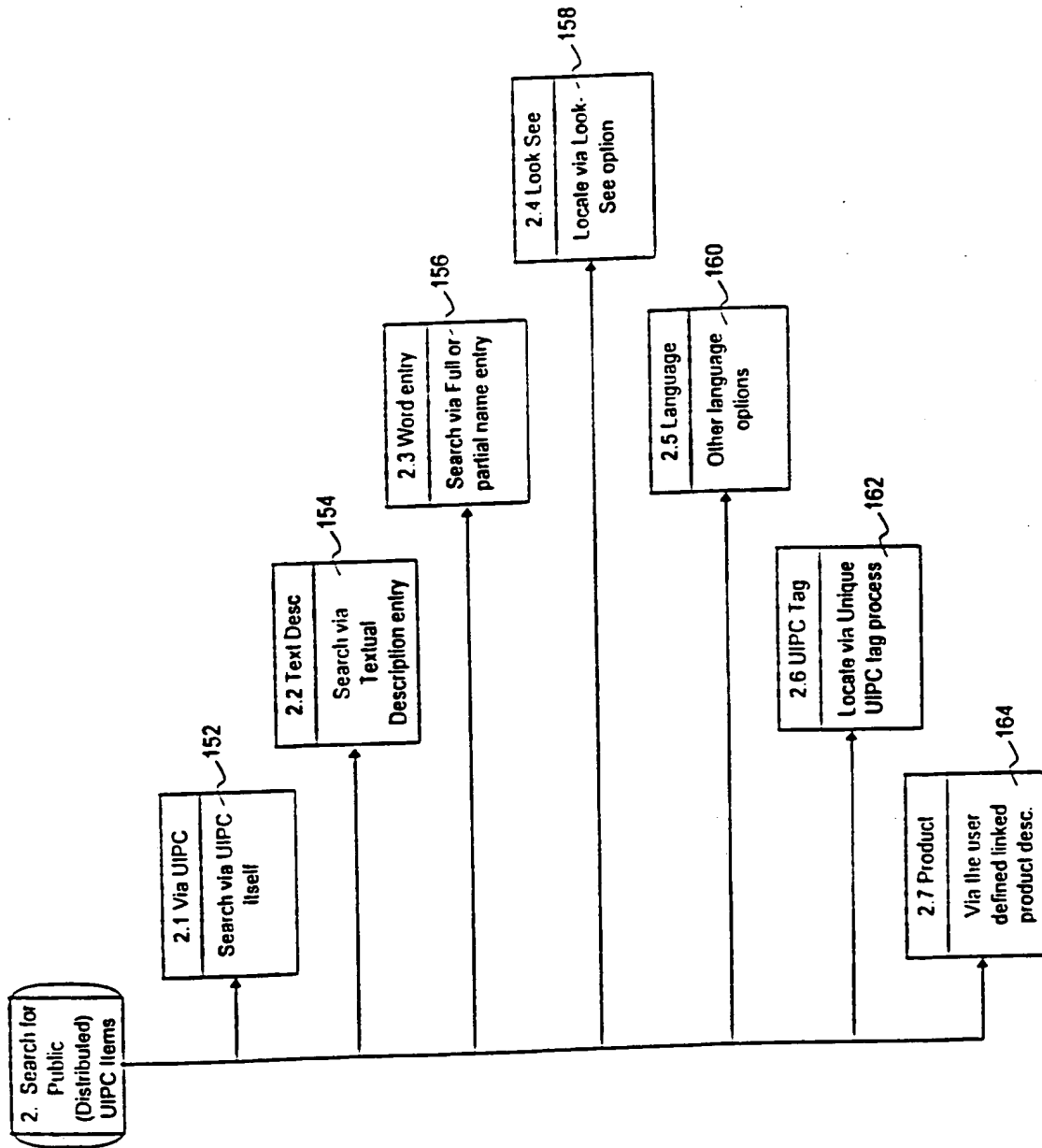
22/33

FIG. 22



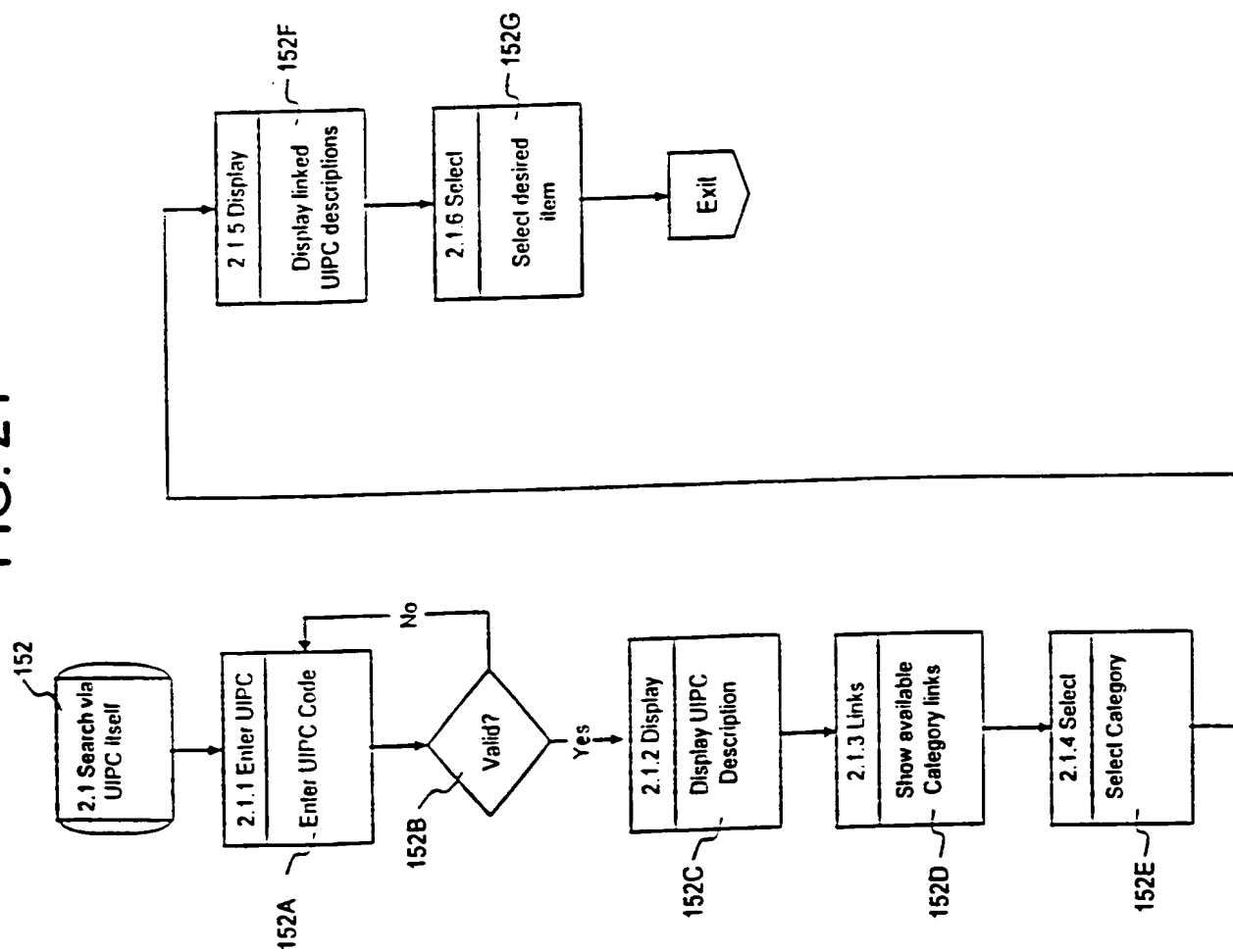
23/33

FIG. 23



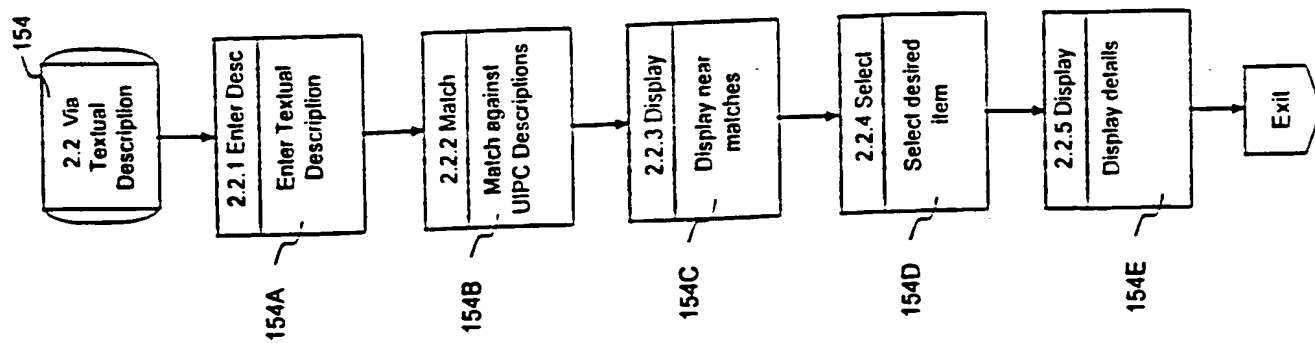
24/33

FIG. 24



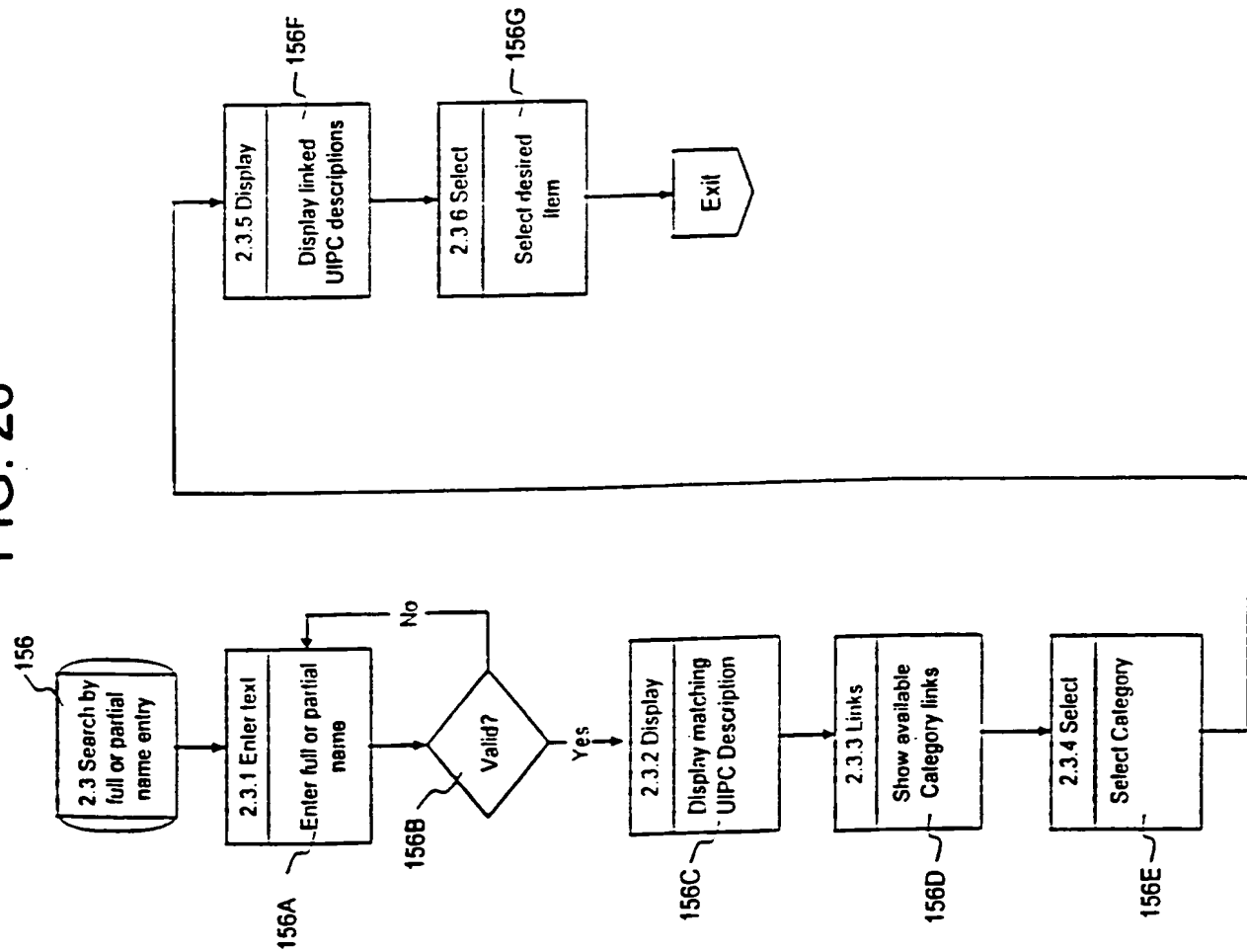
25/33

FIG. 25



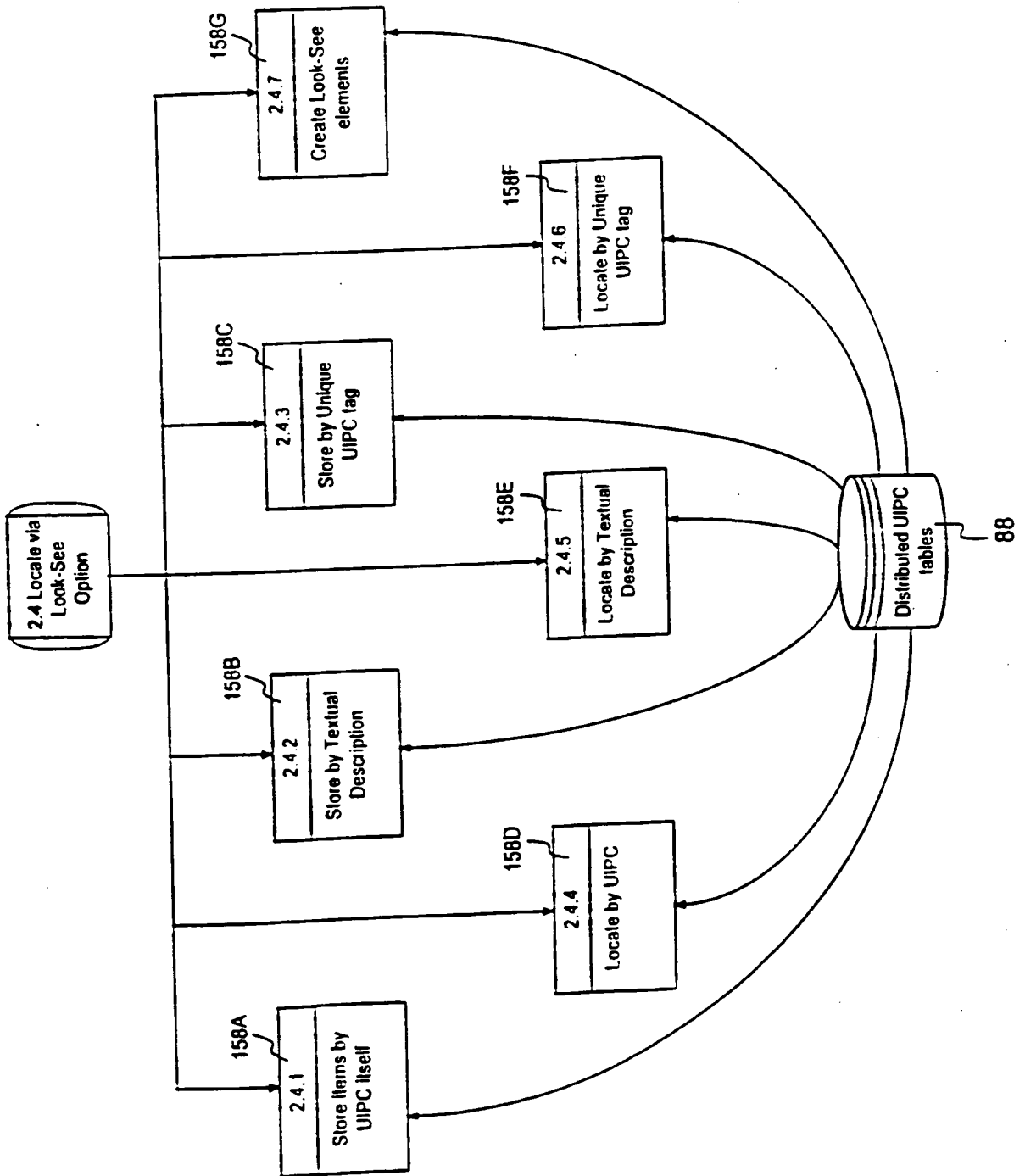
26/33

FIG. 26



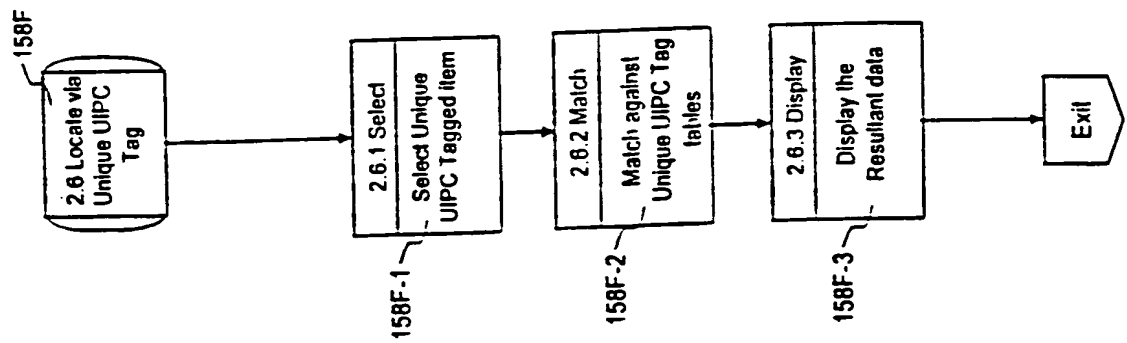
27/33

FIG. 27



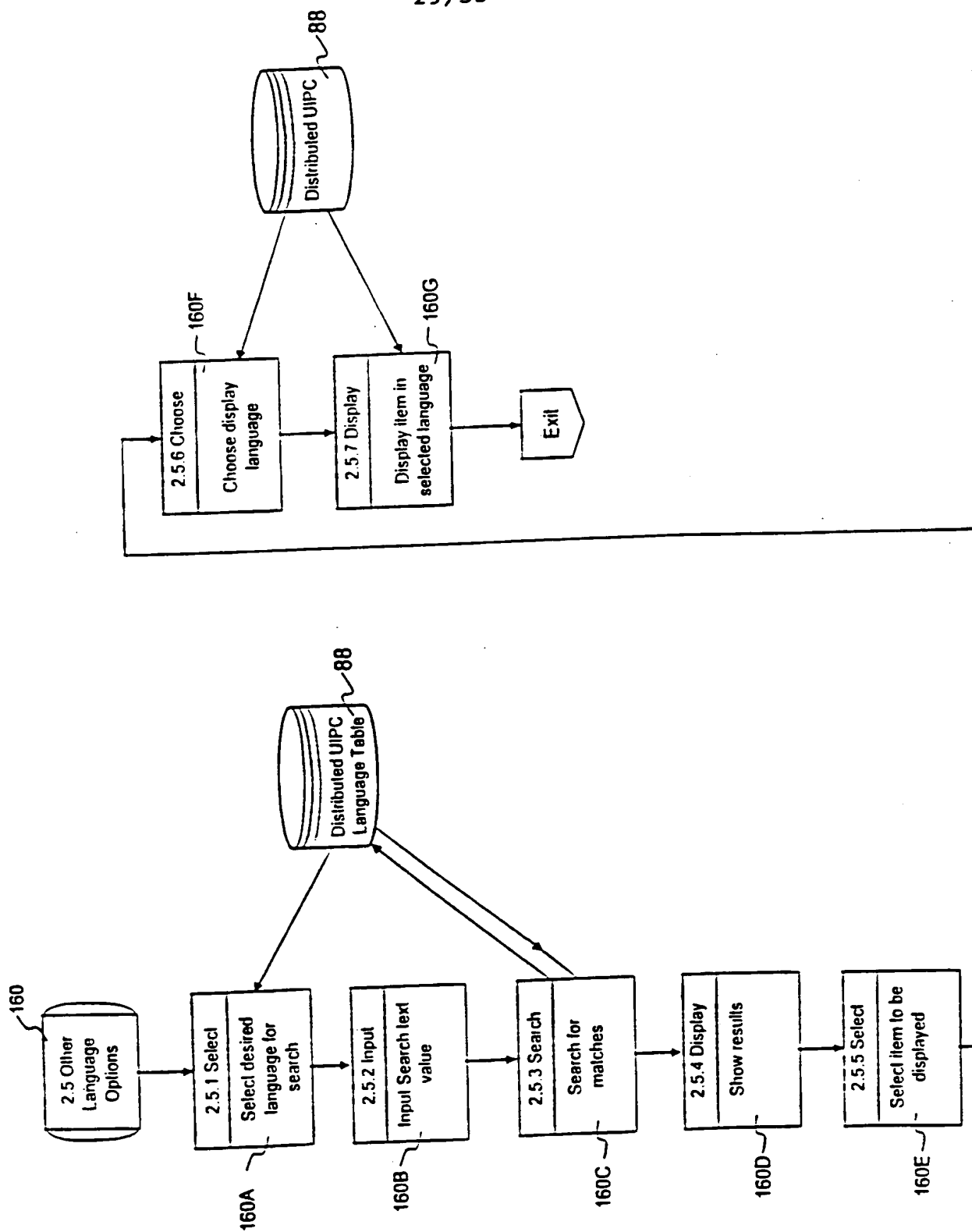
28/33

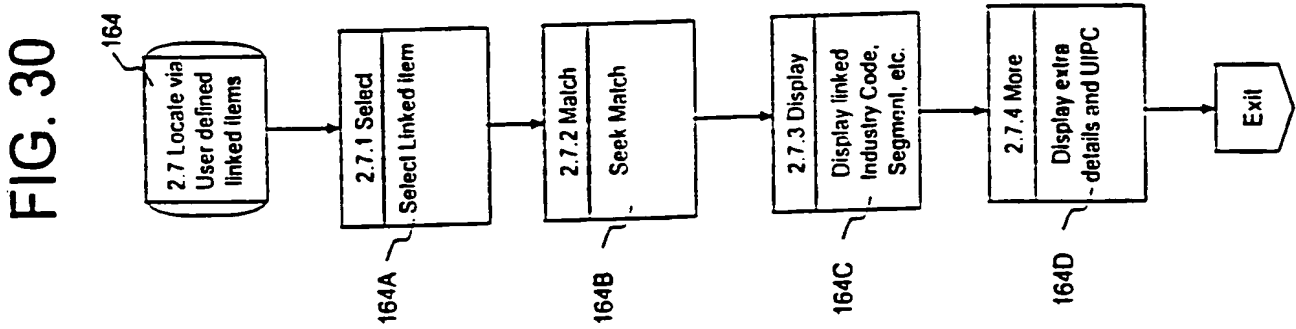
FIG. 28



29/33

FIG. 29





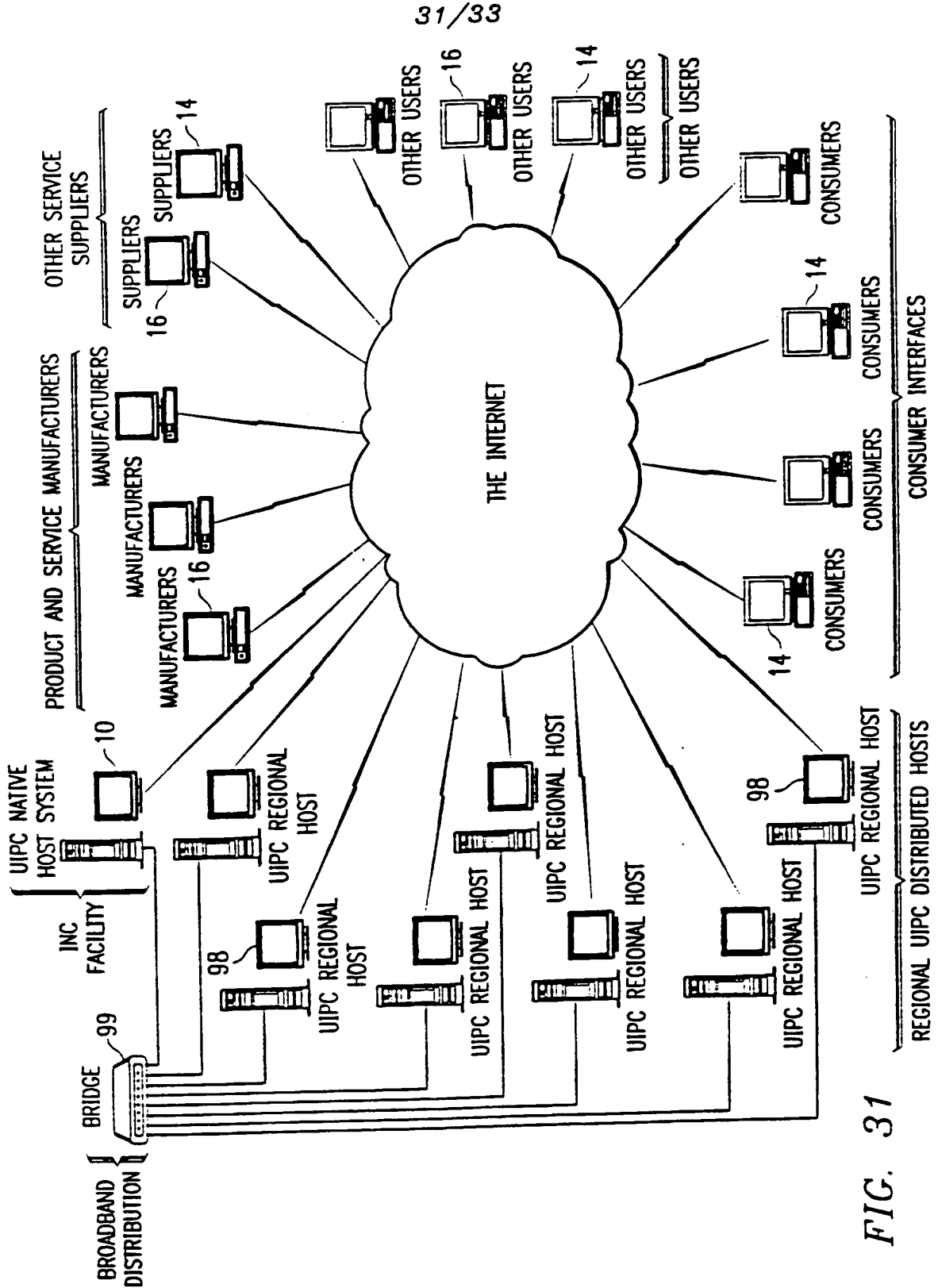
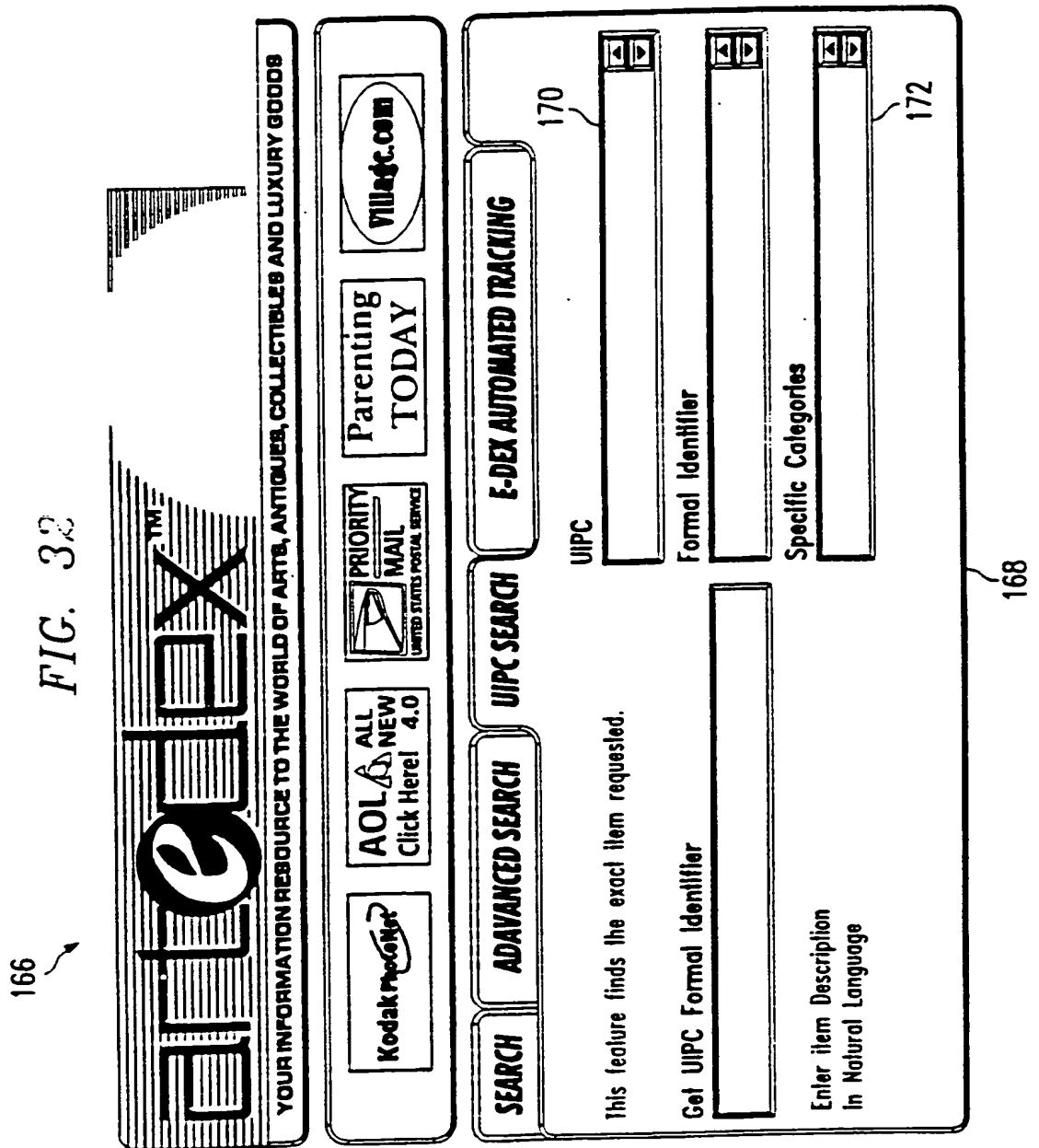


FIG. 31

32/33



33/33

FIG. 33

174

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- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **WALSH, Joseph, J.**
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- (74) Agent: **BOOTZIN, Joel, H.**; Piper Marbury Rudnick & Wolfe, P.O. Box 64807, Chicago, IL 60664-0807 (US).
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(54) Title: **UNIVERSAL PRODUCT CLASSIFICATION METHOD AND SYSTEM FOR USE WITH AN INTERNET WORKED COMPUTER SYSTEM**

(57) Abstract: A universal internet product code system and method of classifying a plurality of items is provided so that the items can be remotely searched on a network. The system and method includes, for each item of the plurality of items, receiving a request for registering an item, receiving data describing the item and determining if at least one of a plurality of previously created categories already properly include the item. The item is then assigned to at least one of the previously created categories when the item is already properly included in the category. Otherwise, the method includes creating a new category associated with the item when none of the previously created categories should include the item. Additionally first codes are created having an entire character sequence corresponding to a combination of categories including the new categories so that each the first code indicates a type of item. This also includes assigning one of the first codes to the item, and finally relationally storing the first code, the category to which the item is assigned, and the data describing the item on a database.

WO 01/27720 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/28507

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : GO6F 17/60

US CL : 705/26

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B. FIELDS SEARCHED

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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